This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

FORDHAM UNIVERSITY PRESS
SCIENTIA
ET
SAPIENTIA

Main Lib. Anat. dept.

LIBRARY
OF THE
UNIVERSITY OF CALIFORNIA.

Class

BY THE SAME AUTHOR

FORDHAM UNIVERSITY PRESS SERIES

MAKERS OF MODERN MEDICINE

Lives of the men to whom nineteenth century medical science owes most. Second Edition. New York, 1910. $2.00 net.

THE POPES AND SCIENCE

The story of Papal patronage of the sciences and especially medicine. New York, 1908. $2.00 net.

MAKERS OF ELECTRICITY

Lives of the men to whom important advances in electricity are due. In collaboration with Brother Potamian, F. S. C., Sc. D. (London), Professor of Physics at Manhattan College. New York, 1909.

IN PREPARATION

MAKERS OF OLD-TIME MEDICINE

MAKERS OF ASTRONOMY

THE THIRTEENTH GREATEST OF CENTURIES

450 pages, 15 illustrations. Second Edition. Catholic Summer School Press, New York, 1909. $2.50 net.

THE DOLPHIN PRESS SERIES

CATHOLIC CHURCHMEN IN SCIENCE

(First Series.) Lives of seven founders in physical science who were churchmen. Reprint. Philadelphia, 1910. $1.00 net.

CATHOLIC CHURCHMEN IN SCIENCE

(Second Series.) Lives of Albertus Magnus, Pope John XXI. the ophthalmologist, Guy de Chauliac and Regiomontanus, besides the Jesuit astronomers and clerical pioneers in electricity. Philadelphia, 1909. $1.00 net.

IN COLLABORATION

ESSAYS IN PASTORAL MEDICINE

O'MALLEY AND WALSH

A manual of information on medical subjects for the clergy, religious superiors, superintendents of hospitals, nurses and charity workers. Longmans, New York, 1906. $2.50 net.

EDUCATION

HOW OLD THE NEW

BY

JAMES J. WALSH, M.D., Ph.D., Litt.D.

Dean and Professor of the History of Medicine and of Nervous Diseases at Fordham University School of Medicine; Professor of Physiological Psychology at the Cathedral College, New York

LIBRARY OF THE UNIVERSITY OF CALIFORNIA

NEW YORK

FORDHAM UNIVERSITY PRESS

1910

LB41
W3

Main Li

COPYRIGHT, 1910, BY
JAMES J. WALSH

THE QUINN & BODEN CO. PRESS
RAHWAY, N. J.

TO THE

Xavier Alumni Sodality

MOST OF THE THOUGHTS CONTAINED IN THIS VOLUME WERE ORIGINALLY EXPRESSED AT OUR BREAKFASTS. IT SEEMS ONLY FITTING, THEN, THAT ON PRESENTATION TO A LARGER AUDIENCE THEY SHOULD BE DEDICATED TO YOU.

J. J. W.

Our Lady's Day, August 15, 1910

210335

PREFACE

THE reason for publishing this volume of lectures and addresses is the persuasion that present-day educators are viewing the history of education with short-sighted vision. An impression prevails that only the last few generations have done work of serious significance in education. The history of old-time education is neglected, or is treated as of at most antiquarian interest and there is a failure to understand its true value. The connecting link between the lectures and addresses is the effort to express in terms of the present what educators were doing in the past. Once upon a time, when I proclaimed the happiness of the English workmen of the Middle Ages, the very positive objection was raised, "How could they be happy since their wages were only a few cents a day?" For response it was only necessary to point out that for his eight cents, the minimum wage by act of Parliament, the workman could buy a pair of handmade shoes, that being the maximum price established by law, and other necessaries at similar prices. If old-time education is studied with this same care to translate its meaning into modern values, then the very oldest education of which we have any record takes on significance even for our time.

While it is generally supposed that there are many new features in modern education, it requires but slight familiarity with educational history to know that there is very little that is novel. Such supposedly new phases as nature-study and technical training and science, physical as well as ethical, are all old stories, though they have had negative phases during which it would be hard to to trace them. The more we know about the history of education the greater is our respect for educators at all times. Nearly always they had a perfectly clear idea of what they were trying to do, they faced the problems of education in quite the same spirit that we do and often solved them very well. Indeed the results of many periods of old-time education are much better than our own, even when judged by our standards.

Unfortunately there exists a very common persuasion that evolution plays a large rôle in education and that we, "the heirs of all the ages in the foremost files of time," are necessarily in the forefront of educational advance. There has been much progress in education in the last century, but it would, indeed, be a hopeless world if there had not been progress out of the depths in which education was plunged in the eighteenth century. There were a number of reformers in education at the end of the eighteenth and the beginning of the nineteenth century. It was rather easy to be an educational reformer at that time. The lowest period in the history of educa-

tion was about the middle of the eighteenth century. It has been assumed that since we are far ahead of that generation we must be still farther ahead of the people who preceded them. That is the mistake. There are periods of education of very great significance centuries long before that time.

In educational lectures and addresses for the past five years, I have been trying to translate into modern terms the meaning of these old periods of education. A great many teachers have thought the ideas valuable and suggestive and so I am tempted to publish them in book form. There is an additional reason, that of wishing to create a bond of sympathy between the two systems of education that have grown up in this country. For some three generations now Catholic educators have been independently building up a system of education from the elementary schools to the university. The American world of education is coming to recognize how much they have accomplished. There has even been some curiosity expressed as to how it was all done in spite of apparently insuperable obstacles. One phase of Catholic education, its thorough-going conservatism and definite effort to value the past properly and take advantage of its precious lessons, is here represented.

My own educational interests have been taken up much more of late years with medicine than with other phases of this subject. Hence the

volume contains certain addresses relating to the history of medical education. They are more intimately linked with the general subject of education than might perhaps be thought. We have had finely organized medical education at a number of times in the past, and, indeed, at the present moment can find inspiration and incentive in studying the legal regulation of medicine and of medical education in what might seem to be so-unpromising a time as the thirteenth century. For true educational progress there has always been need of close sympathy between the non-professional and the professional department of universities. Only when the professional schools are real graduate departments, requiring undergraduate training for admission, is the university doing its work properly. This was the rule in the past—hence the precious lessons for the present in the story of these old-time universities.

These lectures and addresses were actually delivered, not merely read. They were written with that purpose. Certain repetitions that would have been avoided if the articles had been prepared directly for reading and not for an audience, may be noted. Some of the subjects overlap and certain phases had to be treated usually in variant form in different lectures. For these faults the reader's indulgence is craved.

CONTENTS

CHAPTER		PAGE
I.	EDUCATION, HOW OLD THE NEW	3
II.	THE FIRST MODERN UNIVERSITY	63
III.	MEDIÆVAL SCIENTIFIC UNIVERSITIES	93
IV.	IDEAL POPULAR EDUCATION	155
V.	CYCLES OF FEMININE EDUCATION AND INFLUENCE	199
VI.	THE CHURCH AND FEMININE EDUCATION	273
VII.	ORIGINS IN AMERICAN EDUCATION	299
VIII.	THE MEDICAL PROFESSION FOR SIX THOUSAND YEARS	349
IX.	UNIVERSITY MEDICAL SCHOOLS	377
X.	THE COLLEGE MAN IN LIFE	403
XI.	NEW ENGLANDISM	433

EDUCATION, HOW OLD THE NEW

"Nothing under the sun is new, neither is any man able to say: Behold this is new: For it hath already gone before in the ages that were before us."—*Ecclesiastes i: 10.*

"Nullum est jam dictum, quod non dictum sit prius."—
TERENCE, *Eun. Prol.*, 41.
[Nothing is now said which was not said before.]

St. Jerome relates that his preceptor Donatus, commenting on this passage of Terence, used to say:
"Pereant qui ante nos nostra dixerunt."
[May they perish who said our good things before us.]

LIBRARY
OF THE
UNIVERSITY
OF
CALIFORNIA

EDUCATION, HOW OLD THE NEW *

POPULAR lectures are usually on some very up-to-date subject. Indeed, as a rule they are on subjects that are developing at the moment, and the main aim of the lecturer is to forecast the future. It is before a thing has happened that we want to know about it now, and though, as not infrequently occurs, the lecturer's forecast does not in the event prove him a prophet nor the son of a prophet, for nature usually accomplishes her purposes more simply than the closet philosopher anticipates, at least we have the satisfaction for the moment of thinking that not only are we up to date but a little ahead of it. Unfortunately I have to claim your indulgence this evening in this matter, for taking just the opposite course. I am to talk about the oldest book in the world, its old-fashioned yet novel contents, its up-to-date applications, and its significance for the history of the race and, above all, the history of education. The

* Material for this lecture was gathered for one of a course of lectures on Phases of Education delivered at St. Mary's College, South Bend, Ind., at the Sacred Heart Academy, Kenwood, Albany, N. Y., and at St. Mary's College, Monroe, Mich., 1909. In somewhat developed form it was delivered to the public school teachers of New Orleans at the beginning of 1910. In very nearly its present form it was the opening lecture at the course of the Brooklyn Institute of Arts and Sciences, on "How Old the New Is," delivered in the spring of 1910.

one interesting feature, as I hope, of what I have to say, is that old-time methods in education as suggested by this little volume are strangely familiar and its contents are as significant now as they were in the old time from which it comes. The book was written almost as long before Solomon as Solomon is before us, yet there is a depth of practical wisdom about it that eminently recalls the expression "there is nothing new under the sun."

So much attention has been given to education in recent years, we have made such a prominent feature of it in life, have spent so much money on it, have devoted so much time and thought to its development and organization, that we feel very sure that what we are doing now in every line of educational effort represents—indeed must represent—a great advance over anything and everything that was ever accomplished in the past. To say anything else would seem to most people pure pessimism. It would mean that in spite of all the efforts of men we were not making advances. As a matter of fact, all of us know that it is quite possible to make heroic efforts so sadly misdirected that they accomplish nothing and get us nowhere. Progress depends not on effort but on the proper direction of the effort. We are supposed, however, to represent one phase and that at the front rank of an inevitable advance in things human, pushed forward, as it were, by the wheel of evolution in its ceaseless progress, and bound

therefore to make advancement. It is with this idea, so commonly accepted, that I would take issue by showing how much was accomplished in the past that anticipates much of what we are occupied with at the present time, and that serves to show what men can accomplish at any time when they set themselves to doing things with high ideals, well-considered purpose and strenuous effort.

There are those who insist that unless men have the encouraging feeling that they are making progress, their efforts are likely to be less strenuous than would otherwise be the case. There are those who think apparently that compliments make the best incentive for successful effort. Some of us who know that the world's best work, or at least the work of many of the world's great men, has been done in the midst of opposition, in the very teeth of criticism, in spite of discouragement, may not agree with that opinion. The history of successful accomplishment seems to show, indeed, that incentive is all the stronger as the result of the opposition which arouses to renewed efforts and the criticism which strips whatever is new of errors that inevitably cling to it at the beginning. On the other hand, if there is anything that the lessons of history make clear it is that self-complacency is the very worst thing, above all for intellectual effort of any kind, and that criticism, when judicious, is always beneficial.

Above all, comparisons are likely to be chasten-

ing in their effects to make us realize that what we are doing at any particular time does not mean so much more than what many others have done and may indeed even mean less. It is rather interesting, then, to set our complacent assurance that we are doing such wonderful work in education and represent such magnificent progress over against some of the educational work of the past. After all we are not nearly so self-congratulatory about our education, its ways and methods and, above all, its success as we were a dozen years ago. There are many jarring notes of discordant criticism of methods heard, there are many deprecatory remarks passed with regard to our supposed success, and there have been some educators unkind enough,—and, unfortunately, they are often of the inner circle of our educational life,—to say that we are lacking in scholarship to a great degree, and that much of our so-called educational progress has been a tendency toward an accumulation of superficial information rather than a training of the intellect for power. The absolute need of the distinction between education for information and for power has been coming home to us. Above all, we have felt that we were not a little deceived by appearances in education and so are more ready to listen to suggestions of various kinds.

Under these circumstances it has seemed to me, that a calling of attention to what was accomplished at certain long-past periods for educa-

tion, would not only be of interest as information for teachers, but might possibly be helpful or at least suggestive, in the midst of the somewhat disordered state of mind that has resulted from recent criticisms of our educational methods and success, by men whose interest in education cannot be doubted and whose opportunities for knowing are the best. For we are in a time when nearly every important educator, president of a university, dean of a department, old-time teacher or old, thoughtful pupil with the interest of *Alma Mater* at heart, who has had something to say with regard to education has said it in rather derogatory fashion. Perhaps, then, it will do us good to study the periods of the past and see what they did, how their methods differed or still more often were like our own, what their success was like and what we may learn from them. The surprising thing is the number of repetitions of present-day experiences in education that we shall find in the past. This is true, however, in every mode of thinking quite as well as in education, once careful investigation of conditions is made.

If we begin at the beginning and take what is sometimes called the oldest book in the world, we shall see how early definite educational ideas took form. It is a set of moral lessons or instructions given, or supposed to be given, by a father to his son. The father's name was Ptah Hotep. He was a vizier of King Itosi of the Fifth Dynasty in Egypt, some time about 3500 B.C.

The Egyptologists used to date him earlier than that, but in recent years they have been clipping centuries off Egyptian dates until perhaps King Itosi must be considered as having lived probably not earlier than 3350 B.C. That makes very little difference for our purpose, however. The oldest manuscript copy of the book was written apparently not later than 2900 B.C. It exists as the famous Prisse Papyrus in the Bibliothèque Nationale in Paris. There is another copy in the British Museum. There is a pretty thorough agreement as to these dates, so that we can be sure that this little book which has come to be known as the Instruction of Ptah Hotep, or the Proverbs of Ptah Hotpu—another form of his name with a variation in the title—represents the wisdom of the generations who lived in Egypt about 5000 years ago. It was written, as I have said, almost as long before Solomon as Solomon is before us, so that the character of the moral instructions which it contains is extremely interesting.

There must have been a number of copies of it made. This and books like it were used as schoolbooks in Egypt. They were employed somewhat as we employ copybooks. The writing of the manuscript is the old hieratic, cursive writing of the Egyptians, not their hieroglyphics, and the children used portions of this book as copies, listened to dictation from it and learned to write the language by imitating it. Of books similar to it we have a number of manuscript copies. Some

of these copies preserved from before 2000 B.C. are full of errors such as school children would make in taking down dictation. This was their method of teaching spelling, and after the children had spelled the words the teacher went over them and corrected the mistakes. These corrections were made in a different colored ink from that used by the pupils! The whole system of teaching, as it thus comes before us, resembles our own elementary school teaching much more than we might think possible. Spelling, writing, composition are all taught in this way yet, or at least they were when I was at school, and while I have heard that some of the old-fashioned methods were going out, I have also received some hints of the reaction by which they are coming in again, so that the Egyptian methods take on a new interest.

Perhaps there is no more interesting feature of the education of that olden time than the fact that these books which were used as copybooks in the school contain moral lessons. We have been neglecting these in our schools and have come to recognize the danger of such neglect. Definite efforts at the organization of moral teaching in some form are being made by many teachers, and their necessity is recognized by all educators. All of these old Egyptian books, then, will have a special claim on our interest at the present time. Above all, the oldest of them, though it is literally the oldest book in the world, merits

our attention, because its moral teaching is very clear-cut and its emphasis on ethical precepts very pronounced.

We would be very prone to think that what an old father has to say to his boy over fifty centuries ago would have, at most, only an antiquarian interest for us. It is not easy even to imagine that the old gentleman could have known human nature so well and written from so close to the heart of humanity because of his love for his boy, that his words would always have a practical application in life. Such, however, is actually the case. Any father of the modern time would be proud to be able to give to his boy the eminently practical maxims that this old father has written down. If there is any advice that will be helpful for youth, for the young usually demand that they shall have their own experience and not take it at second hand, this is the advice that is of value. Only fools, it is said, learn by their own experience, but then there is good Scripture warrant for believing that they were not all wise men in the olden time, and we are pretty well agreed that all the fools are not dead yet. If advice can be of service, however, from one generation to another, then here is the wisdom of age for the inexperience of youth. At least it will serve after the event to show youth that it was properly warned and that it is entirely its own fault if it has been making a fool of itself—as other generations have done before.

It might be expected that at least in form these old-time maxims would be rude and crude, expressed with an old man's loquaciousness and with many personal foibles. Fortunately for us, while to his son Ptah Hotep was very probably an old man, he was not what most of us would call old. In Egypt they married comparatively young. This boy was probably the oldest son. It is usually for the oldest that such advice is treasured up and written out. The father then, giving his advice just as his son was leaving the paternal household when he had married a wife and was about to set up a home of his own, was probably not more than forty. To seventeen or eighteen, forty is quite ancient. To most of the rest of us it is entirely too young to be trusted absolutely in serious matters. Aristotle declared that a man's body reaches physical perfection at thirty-five and his mind reaches intellectual maturity at forty-nine. His students were inclined to think that this age was entirely too old, his philosophic contemporaries of his own generation and the members of national academies and learned societies of most of the generations since, have been quite sure that the term set was entirely too young.

Ptah Hotep's son, then, very probably looked on his father as most sons under twenty are prone to do, as a dear old-fashioned gentleman (he does not like to use the word old fogy for his father, reserving it for the fathers of others), who would

be quite tolerable if he only had a little more sympathy with the wonderful advance that is in the world in this new generation. The real young man of the time, however, was the father who wrote his maxims, the condensed wisdom of his experience of life, with a directness, an absolute clarity, an occasional appeal to figures of speech and a variety of expression so striking as to make his work literature. As such it has come down to us. It is eminently human in every way, and while there is here and there an unfortunate tendency to repeat words of similar sound and different meaning, after the fashion of what we call punning, this is pardonable enough since so many of our friends indulge in it and give us practice in pardoning, while, on the whole, the old man wrote as wisely as Polonius, and in a style not quite as artificial as that which Shakespeare has invented as suitable to the old Danish Prime Minister, whom the ancient vizier of Egypt recalls so vividly in many ways.

No idea is probably more ingrained in modern thinking, no opinion is more generally accepted, no conclusion is surer to most people, than that we are in the midst of marvellous progress in this little world of ours, and that our generation is somewhere at the apex of the Pyramid of Progress, elevated thereto by the attainments of the generations that have preceded us. As the Poet Laureate put it at the close of the nineteenth century, " we are the heirs of all the ages in the fore-

most files of time"; and because we have the advantage of our predecessors' progress in their time, we are, of course, in all that makes for human happiness and fulness of life, very far ahead of those gone before us. The farther back we go in history, then, the lower down men are supposed to be found in all that stands for intellectuality and in all that represents the possibilities of human achievement at its best. It is now well understood that the generations of the past are not so much to be blamed for their backwardness as to be pitied for the misfortune that, having come earlier in the world's history, they could not have the advantages that we enjoy, and therefore could only attain much lower stages in human progress than ours.

Apparently, there are very few people who do not share in the opinions thus expressed. The nineteenth century has been proclaimed the century of evolution; and the idea of evolution has become so much a part of the thought of our time that man also is assumed to be in the midst of it, and history is presumed to show distinctly the wonderful advance that humanity has made. As a matter of fact, it is extremely difficult to point out definitely where progress in humanity may be observed. Ambassador Bryce was asked, two years ago, to deliver an address before Phi Beta Kappa at Harvard, and took for his subject "What is Progress?" Phi Beta Kappa is the fraternity that admits into its classes only the best

students,—men who have proved their ability by success. Mr. Bryce, speaking to the most intelligent university graduates, might be expected to make much of our wonderful recent progress. The address subsequently appeared in the *Atlantic Monthly* for August, 1907. Far from any glorification of progress, the historian of the American Commonwealth, who has demonstrated his breadth of view and his notable lack of British insularity by the large way he has written about us, so that we have adopted his work as a text-book of information about ourselves, is very dubious as to whether there is any progress in the world. There is certainly no progress in man's highest expressions of his intelligence. As Mr. Bryce says: "The poetry of the early Hebrews and of the early Greeks has never been surpassed and hardly ever equalled. Neither has the philosophy of Plato and Aristotle, nor the speeches of Demosthenes and Cicero." No one pretends that there is any progress in art. The masterpieces of architecture, sculpture, and painting date as a rule from long before our time, some of them nearly twenty-five hundred years back.

As has been very well said, the man who talks much about progress in our time usually knows only the history of human thought in his own generation, and not very much about that. In nearly every important phase of human achievement, we are, in present accomplishment, far behind the great predecessors. In our generation,

we are confessedly imitators in every phase of æsthetic expression. In painting, sculpture, art and literature, our models are all in the past, and we are quite frank in confessing that we are doing no work at all so good as the work of our forefathers of many generations and sometimes many centuries ago. Whence, then, comes the idea of progress? It has obtained most of its vogue from the theory of evolution; and the lack of evidence for evolution in general, in spite of the persuasion on the part of many educated people that there are proofs for it, can be very well judged from the corresponding lack of evidence with regard to progress in humanity. There is complete absence of proof for this latter, when the situation with regard to human achievement in the really great things of human life is examined. Indeed, it would be amusing were it not amazing to think how readily we have come to accept notions for which there is so little substantiation.

To many this will doubtless seem a surprising declaration to make, after all that has been written, and universally accepted as most people think, with regard to evolution by the great minds of the nineteenth century. What evolution means, however, is summed up in the theory of descent, that is that living things as we know them now, have all come from simpler forms and perhaps all from a single form. The only other phase of interest in evolution is what concerns the theory of natural selection, which is supposed by many people to

have been demonstrated in the nineteenth century. It may be well for those who think thus to have recalled to them what a recent writer on the subject, himself a distinguished investigator in biology, a professor at Leland Stanford University, where under the influence of President Jordan biology is thoroughly yet conservatively cultivated, has to say with regard to these theories and the objective evidence for them. Professor Vernon L. Kellogg in his "Darwinism To-day," * p. 18, though himself an evolutionist and a Darwinian, says: "What may for the moment detain us, however, is a reference to the curiously almost completely subjective character of the evidence for both the theory of descent and natural selection. Biology has been until now a science of observation; it is beginning to be one of observation plus experiment. The evidence for its principal theories might be expected to be thoroughly objective in character; to be of the nature of positive, observed and perhaps experimentally proved, facts. How is it actually? Speaking by and large, we only tell the general truth when we declare that *no indubitable cases of species forming or transforming, that is of descent, have been observed; and that no recognized case of natural selection really selecting has been observed.* I hasten to repeat the names of the Ancon sheep, the Paraguay cattle, the Porto Santo rabbit, the Artemias of Schmankewitch and the de Vriesian

* Henry Holt and Co., New York, 1907.

evening primroses to show that I know my list of classic possible exceptions to this denial of observed species forming, and to refer to Weldon's broad-and-narrow fronted crabs as a case of what may be an observation of selection at work. *But such a list, even if it could be extended to a score, or to a hundred, of cases, is ludicrous as objective proof of that descent and selection, under whose domination the forming of millions of species is supposed to have occurred.*" (Italics mine.)

Mr. Kellogg, as might be expected from this, objects very much to the application that has been so heedlessly made of certain supposed principles of evolution to pedagogy. In practically every science to which Darwinian principles have been applied it is the weakest of the principles that have been appealed to as the foundation for presumedly new developments in the particular science. With regard to the so-called science of education Professor Kellogg says:

"In Pedagogy it is also the theory of descent rather than the selection theory which has been drawn on for some rather remarkable developments in child study and instruction. Unfortunately it is on that weakest of the three foundation pillars of descent, namely the science of embryology with its Müllerian-Haeckelian capitulation theory or biogenetic law, that the child-study pedagogues have builded. The species recapitulates in the ontogeny (development) of each of its individuals the course or history of its

phylogeny (descent or evolution). Hence the child corresponds in different periods of its development to the phyletic stages in the descent of man. As the child is fortunately well by its fish, dog and monkey stages before it comes into the care of the pedagogue, he has to concern himself only with safe progress through the various stages of prehistoric and barbarous man. Detect the precise phyletic stage cave-man, stone-age man, hunter and roamer, pastoral man, agriculturalist, and treat with the little barbarian accordingly! What simplicity! Only one trouble here for the pedagogue; *the recapitulation theory is mostly wrong and what is right in it is mostly so covered up by the wrong part, that few biologists longer have any confidence in discovering the right.* What, then, of our generalizing friends, the pedagogues?"

It is in educational matters, above all, then, that we must be careful about assumptions with regard to evolution and supposed inevitable progress because we must, forsooth, be taking advantage of the accumulated experience of previous generations. There is no inevitability about progress in any line. The attainment of any generation depends absolutely on what that generation tries to do, the ideals that it has and the fidelity with which it sets itself to work. We can make just as egregious mistakes, and we have made them, as any generation of the past. We can foster delusions with regard to our all-knowingness just as

many another foolish people before us have done, and our one hope of real accomplishment for ourselves and our generation is to choose our purposes carefully and then set about their accomplishment with strenuous effort. The lessons of the past in history are extremely precious not only because they show us where others made mistakes but also because they show us the successes of the past. The better we know these, the deeper our admiration for them, the better the outlook for ourselves and our accomplishment. This is the ideal that I would like to emphasize in this series of lectures and addresses and in this, far from there being any pessimism, there is, as it seems to me, the highest optimism. Any generation that wants to can do well, but it must want to do efficaciously.

Any one who thinks that education, in the sense of training of character or advice with regard to practical, every-day life, has evoluted in the course of time, should read this little book that I bring to you this evening. Indeed, it is as the first chapter in the history of education that it finds its most valuable place in literature. This teacher of the old-time, who had his boy's best interest at heart, not only knew what to say but how to say it so as to attract a young man's attention. Of course it is probable that, even with all this good advice, the young man went his way in his own fashion; for that is ever the mode of the young. But, so far as the experience of another

could supply for that personal experience which every human being craves, and will have, no matter what the cost, surely this oldest book in the world supplies the best possible material. As literature, it has a finish that is quite surprising. Art is said to be the elimination of the superfluous. Surely, then, this is artful, in the best sense of that word, to a supreme degree. It is surprising how few repetitions there are, how few tergiversations, how few unnecessary words; and yet the style is not so austere as to be dry and lacking in human interest.

Probably the most interesting feature of the book is the fact that in it God is always spoken of in the singular. It is not the "gods" who help men, who punish them, who command and must be obeyed, whose providence is so wonderful, but it is always "God." The latest editor,* Mr. Battiscombe G. Gunn, in his version always inserts the definite article before the word God because, he says, in different places there were different local gods, and the idea of the writer was to emphasize the fact that the god of any particular locality would act as he declared in his instructions. There are many distinguished Egyptologists, however, who insist that the expression "the God," which occurs not only in this but in many other very early Egyptian writings, is a

* "The Instructions of Ptah Hotep." Translated from the Egyptian, with an Introduction and an Appendix, by Battiscombe G. Gunn. E. P. Dutton & Co. Wisdom of the East Series, 1909.

monotheistic deity whose name is above all names, and transcends all the power of humanity to name him, and hence is spoken of always without a name but with the definite article.

It is curious indeed to find that the very first bit of instruction given to his son by this wise father is, not to be conceited about what he knows. How striking the expression of his first sentence of this oldest book: "Be not proud because thou art learned." And the second is like unto the first: "But discourse with the ignorant man as with the sage." And then at the end of this very first paragraph comes the first figure of speech in human literature that has been preserved for us. It is as beautiful in its simplicity and illuminating quality as any of the subsequent time. "Fair speech" (by which is meant evidently kindly speech toward those who know less than we do) "is more rare than the emerald that is found by slave maidens on the pebbles." Then there comes a series of directions as to how the young man should treat his superiors, his equals and his inferiors. If in argument he is worsted by some one who knows more than himself, he is cautioned, "Be not angry." If some one talks nonsense, "Correct him." If an ignorant man insists on arguing, "Be not scornful with him, but let him alone; then shall he confound himself"; for "it is shameful to confuse a mean mind."

The advice may be summed up, Do not argue with your superiors, it does no good; nor with

your equals, state your case and let it go; but above all, not with your inferiors; let them talk and they will make fools of themselves.

Kindness is always insisted on as the quality most indispensable to a man. "Live therefore," says the father, "in the house of kindliness, and men shall come and give gifts of themselves." There are lessons in politeness as well as in kindliness. For instance: "If thou be among the guests of a great man, pierce him not with many glances. It is abhorred of the soul to stare at him. Speak not till he address thee. Speak when he questioneth thee; so shalt thou be good in his opinion." Again, he wants his son not to eat the bread of idleness: "Fill not thy mouth at thy neighbor's table." He insists much on the lesson that God helps those who help themselves. "Behold," he says, "riches come not of themselves. It is their rule to come to him that actively desires. If he bestir him and collect them himself, God shall make him prosperous; but He shall punish him if he be slothful." On the other hand, the gaining of riches for riches' sake is not worth the while. "When riches are gained, follow the heart; for riches are of no avail if one be weary." As much as to say, after having gained a competency, do not spend further time in amassing wealth, but enjoy in a reasonable way that which has been obtained.

There are certain things, however, that a man should not follow; they are unworthy of his na-

ture as a man. "As to the man whose heart obeyeth his belly, he causeth disgust in place of love. His heart is wretched, his body is gross. He is insolent toward those endowed by God. He that obeyeth his belly hath an enemy." While the old man warns his son against gluttony and against sloth, he has much to say with regard to covetousness: "If thou desire that thine actions may be good, save thyself from all malice, and beware of the quality of covetousness, which is a grievous inner malady." This expression is rendered still more striking by what is added to it; for the father insists that it is particularly relatives-in-law who quarrel over money. "Covetousness setteth at variance fathers-in-law and the kinsmen of the daughter-in-law. It sundereth the wife and the husband; it gathereth unto itself all evils. It is the girdle of all wickedness." It needed only the next sentence to make these expressions supremely modern: "Be not covetous as touching shares, in seizing that which is not thine own property."

The God of this earliest book that we have from the hand of man has nearly all the interesting and important qualities that we refer to the Deity. He is looked up to as the giver of all good things. He loves his creation, and above all loves man, and observes men's actions very carefully, and rewards or punishes them according to their deserts. He desires men to be fruitful, and to multiply upon the earth for their own good and

for his glory. Nothing unworthy of the Deity, as he is known by the most educated people, is attributed to this God, who transcends a personal name. There is an utter disregard of all trivial mythology and of all mysterious riddles, though these trimmings of truth are to be found constantly in other Egyptian works of later date. Indeed, the picture of God is as striking a presentation of the fatherliness and the providence of the Almighty and of most of the lovable characteristis of the Deity as there is to be found anywhere in literature until the coming of the Saviour.

One might think that after having warned his son about most of the Seven Deadly Sins as we know them—pride, covetousness, gluttony, envy, sloth and anger,—at least we should not find lust touched on in the modern way. There is, however, in this matter an extremely chaste bit of advice that sums up the whole situation as well as a father can tell his son. The writer says: "No place prospereth wherein lust is allowed to work its way. A thousand men have been ruined for the pleasure of a little time short as a dream. Even death is reached thereby. It is a wretched thing. As for the lustful liver, every one leaveth him for what he doeth; he is avoided. If his desires be not gratified, he regardeth no laws."

The father tells his son, straightforwardly and emphatically, that indulgence in this vice inevitably leads to loss of friends, of health, of every-

thing that the world holds good; and that once a man has started down this path he has no regard for law or order or decency or self-respect. This eighteenth paragraph on a thorny subject is probably one of the most wonderful passages in this advice of a father to his son. Fathers of the modern time ask what shall they say to their boys. Here is something to tell them that does not excite pruriency, that does set the full state of the case before them and represents probably all that can be said with assurance and safety.

In recent years we have heard much of moral and social prophylaxis and the necessity for giving precious information with regard to this subject that may prove helpful to young people. Most people are sure to think that this is the first time in the history of the race that there has been an awakening to the necessity for this. Of course there is no doubt that owing to delayed marriages and unfortunate social conditions in our large cities we have more need of it than past generations, yet here in this old schoolbook from Egypt we have very definite and very wise teaching in the matter. A physician is prone to wonder what did the old man mean by "a thousand men have been ruined for the pleasure of a little time short as a dream. Even death is reached thereby." Is it possible that he knew something of the physical, or let us rather say, the pathological dangers of the vice? In the discussion of the pictures of old-time surgery in *The*

Journal of the American Medical Association I suggested that these generations seem to have known more about this phase of pathology than we are inclined to admit.

On the other hand, the father emphatically warns his son that his happiness will depend on loving his wife and caring for her to the best of his ability; though some of the details of that advice are so naïvely modern in their expression that it seems almost impossible to believe that they should have been spoken nearly six thousand years ago. He says: "If thou wouldst be wise, provide for thine house, and love thy wife. Give her what she wants to eat, get her what she wants to wear [literally, fill her stomach, clothe her back]. Gladden her heart during thy lifetime, for she is an estate profitable unto its lord. Be not harsh, for gentleness mastereth her more than strength."

There is a variant translation of this passage quoted in Maspero's "The Dawn of Civilization," which brings out even more clearly the ideas that seem most modern, and which makes it very sure that it is not the translator who has found in vague old expressions thoughts that, when put into modern words, have modernized old ideas. Maspero reads: "If thou art wise, thou wilt go up into thine house and love thy wife at home; thou wilt give her abundance of food; thou wilt clothe her back with garments; all that covers her limbs, her perfumes, are the joy of her life. As

long as thou lookest to this, she is as a profitable field to her lord [master]."

The old gentleman's idea evidently was that, looked at merely from a material standpoint, it was worth a man's while to spend as much time caring for his wife as for his estate. She meant just as much for his happiness in the end and might mean probably more for his unhappiness. It is a very practical way of looking at the subject and perhaps the romancists might think it sordid. It must not be forgotten, however, that this is only the secondary motive suggested. At the beginning he commands him to love his wife for her own sake, and then, after suggesting the material benefit that comes from caring for her, he says that "gentleness mastereth her more than strength."

Immediately after this valuable advice with regard to the care of the principal member of his household the old man turns to the question of the care of his servants. We are surely prone to think that the servant problem at least is a new development in this little world of ours. Many literary works serve to foster the impression that in the old days servants were easy to obtain, that they were always respectful, that they could readily be managed and life with them was, if not one sweet song, at least a very smooth course. Men, however, have always been men, and women and even servants have always had minds of their own, and strange as it may seem to us there has always

been a servant problem and there was one in Egypt 5,500 years ago.

Ptah Hotep said: " Satisfy thine hired servants out of such things as thou hast; it is the duty of one that hath been favored of God. In sooth, it is hard to satisfy hired servants. For one saith, 'he is a lavish person; one knoweth not that which may come from him.' But on the morrow he thinketh, 'he is a person of exactitude (parsimony), content therein.' *And when favors have been shown unto servants, they say 'we go.'* (Italics mine.) Peace dwelleth not in that town wherein dwell servants that are wretched."

A difficult problem; presents will not solve it but only complicate it, exact justice is necessary, but the peace that follows is worth the trouble it entails. The principle would be valuable in many a squabble of corporate employer and hosts of servants in the modern time.

For domestic happiness, it needed only the advice given a little later in this instruction: " Let thy face be bright what time thou livest. Bread is to be shared. He that is grasping in entertainment himself shall have an empty belly. He that causeth strife cometh himself to sorrow. Take not such a one for thy companion. It is a man's kindly acts that are remembered of him in the years after his life."

There is one phase of life in which Ptah Hotep differs entirely from the present generation,—at least if we are to judge the present generation

from its results in this matter. Of course there are many of us who consider that, in spite of six thousand years of distance in time, the old Egyptian prime minister is far ahead of our contemporaries in this important subject. He thought that obedience was the most important thing in life. For him independence of spirit, in a young person particularly, was an abomination. In spite of the tendency to loquacity and to repeat itself, often said to be so characteristic of old age, the father, who in all his instructions has never sinned against this literary canon, almost seems to do so when it comes to the question of obedience. Over and over again he insists that obedience is the one quality that must characterize a man if he is to get on in life, and if he is to secure happiness, and have a happy generation of his own group around him. The sentences read more like à Kempis or some mediæval writer on spirituality, and seem meant for monks under obedience rather than for a young man of the world, the son of a prime minister, just about to enter on his life work in business and politics. Two of the paragraphs are well worth quoting here:

"A splendid thing is the obedience of an obedient son; he cometh in and listeneth obediently. Excellent in hearing, excellent in speaking, is every man that obeyeth what is noble. The obedience of an obeyer is a noble thing. Obedience is better than all things that are; it maketh good will. How good it is that a son should take

that from his father by which he hath reached old age [obedience]! That which is desired by the God is obedience; disobedience is abhorred of the God. Verily, it is the heart that maketh its master to obey or to disobey; for the safe-and-sound life of a man is his heart. It is the obedient man that obeyeth what is said; he that loveth to obey, the same shall carry out commands. He that obeyeth becometh one obeyed. It is good indeed when a son obeyeth his father; and he (his father) that hath spoken hath great joy of it. Such a son shall be mild as a master, and he that heareth him shall obey him that hath spoken. He shall be comely in body and honored by his father. His memory shall be in the mouths of the living, those upon earth, as long as they exist.

"As for the fool, devoid of obedience, he doeth nothing. Knowledge he regardeth as ignorance, profitable things as hurtful things. He doeth all kind of errors, so that he is rebuked therefor every day. He liveth in death therewith. It is his food. At chattering speech he marvelleth, as at the wisdom of princes, living in death every day. He is shunned because of his misfortunes, by reason of the multitude of afflictions that cometh upon him every day."

Of one thing the old prime minister was especially sure. It was that employment at no single occupation, no matter what it was or how interesting soever it might be, could satisfy a man or even keep him in good health. He felt, prob-

ably by experience, the necessity for diversity of mind and of occupation, if there was to be any happiness or any real success in life. He has a quiet way of putting it, but he says, as confidently as the most modern of pedagogues, that all work and no play makes Jack a dull boy, and all play and no work makes it impossible for Jack to get on. But a proper mixture of both makes life livable; and if a man has only the work that he cares for, and can get some of his pleasure in life out of his work, then is all well. "One that reckoneth accounts all the day passeth not an happy moment. One that gladdeneth his heart all the day provideth not for his house. The bowman hitteth the mark, as the steersman reacheth land, by diversity of aim. He that obeyeth his heart shall command."

There are some conclusions in the philosophy of life that we are very much inclined to think are the products of modern practical wisdom, and it is rather surprising to find them stated plainly in this old-time advice of the father to his boy. If there is one idea more than another that we are confident is modern, and are almost sure to attribute to the social development of our own generation, it is that riches do not belong to the man who makes them to be used for his own purpose alone, but their possession is justified only if he uses them for the benefit of the community. This is so up-to-date an idea indeed that it is startling to find it expressed in all its complete-

ness in this oldest of books. Ptah Hotep said: "If thou be great after being of no account, and hast gotten riches after poverty, being foremost in these in the city, and hast knowledge concerning useful matters so that promotion is come unto thee, then swathe not thine heart in thine hoard, for thou art become the steward of the endowments [of God]. Thou art not the last; another shall be thine equal, and to him shall come the like [fortune and station]."

After all this it may be necessary to trace the pedigree of the book, since it might seem to be possible that it was a modern invention. The original of it is the so-called "Prisse Papyrus," which is well known by name to all students of archæology and especially of Egyptology, and the contents of which are familiar to all who are acquainted with Egyptian history and literature. It appears to have been found at Thebes, but the exact place is not known. M. Prisse d'Avennes, the well-known French archæologist after whom it is named, is said to have bought it from one of the Egyptian native workmen, or *fellahin,* whom he had hired to make excavations in the tombs of Thebes. Egyptologists generally have accepted the idea that it was actually taken by this workman from the tomb of one of the Kings Entef, who were of the Eleventh Dynasty and reigned about 3000 B.C. This is not certain, however. After publishing a translation in 1847, M. Prisse presented the precious papyrus to the

Bibliothèque Royale (now Nationale). There it may still be seen. Spread out flat, it measures about twenty-four feet in length and six inches in width. There are about eighteen pages of clear red and black writing in the Hieratic character.

The first part of this manuscript is a portion of another book, the so-called "Instructions of Ke'gemni." * This is, however, only a short fragment, though probably of even older date than the "Instructions of Ptah Hotep." This work we have in its entirety. Doubtless its preservation was due to the fact that many copies of it had been made, though only two have come down to us.

There is a second manuscript of the "Instructions of Ptah Hotep,"—or the "Proverbs of Phtahhotpû," as the book is called by Maspero. This was discovered not long ago in the British Museum, by Mr. Griffith; and, while it is not so complete as the French copy, there is such an agreement between the two manuscripts that there is no doubt about the authenticity of the book and of the fact that it represents the oldest book in the world.

Its date would be about 3650 B.C. if we were

* These Egyptian names are spelled differently by different modern scholars, according to their idea of the value of certain sounds of the older language as they should be expressed in the modern tongue to which they are most familiar. Many English scholars spell this as I have done, Ke'gemni. Maspero, however, and most of the French scholars, spell it Qaqimni. Maspero prefers the form Phtah-Hotpû to that of Ptah Hotep, which has been adopted by English scholars.

to follow,—as does the translator of the most easily procurable English edition, Mr. Gunn,—the chronology of Flinders Petrie. Recent advances in our knowledge of Egyptology, however, have brought the dates nearer to us than they were placed before. Such men as Breasted of Chicago, and Maspero, would probably take from three hundred to five hundred years from this date. There is a definite tendency in all the histories to bring dates much nearer to the present than before. For a time, the older one could place a date the more scholarly seemed to be the appeal of such an opinion. Now the tendency is all the other way. Even the latest date that can be given for Ptah Hotep, or Phtahhotpû, would still make his little book the oldest book in the world, however.

Fortunately for us the manuscripts of the instructions of Ptah Hotep that have come down to us are in much better condition than those of most of the other instructions of similar kinds formerly used in the schools that have been preserved. In some of these there are a great many errors of writing, spelling and grammar with the corrections of the master above in a different-colored ink. Verily, education has not changed much in spite of six millenniums, or very nearly so, of supposed progress since these were written, for the whole process is as familiar as it can be. As Mr. Battiscombe Gunn says in his Introduction to his edition " a schoolboy's scrawl over 3,000 years

old is no easy thing to translate." We would seem, however, to have been blessed in the preservation of this oldest book in the world, either of the original copies set by the masters or of such copies as were made by advanced students. The series of lucky chances that have combined to bring to us, in the comparatively perfect form in which it exists, this oldest book in the world is interesting to contemplate. Without them we would have no idea of how closely the first people of whom we have any definite records in history resembled us in every essential quality of humanity, even to the ways and modes by which they tried to lift humanity out of the barbaric selfishness inherent in it to what is higher and nobler in its nature.

With this surprising resurrection of our school-teaching methods from the past it is interesting to study other phases of the education of these early times, and at the same time to note the accomplishments of the men, of the period, their tastes, the state of their culture as regards the arts and crafts and personal adornment and the decoration of their houses and buildings of various kinds. Flinders Petrie, the distinguished English Egyptologist, in an article on "The Romance of Early Civilization," printed recently in *The Independent* (New York), said:

"We have now before us a view of the powers of man at the earliest point to which we can trace written history, and what strikes us most is how very little his nature or abilities have changed in

seven thousand years; what he admired we admire; what were his limits in fine handiwork are also ours. We may have a wider outlook, a greater understanding of things, our interests may have extended in this interval; but as far as human nature and tastes go, man is essentially unchanged in this interval."

We have enough of the products of the arts and crafts of these early Egyptian generations to show us that there must have been no inconsiderable training of the men of this time in the making of beautiful art objects. For instance, the interior decoration of their tombs shows us men skilled as designers, clever in the use of colors, with a rather extensive knowledge of pigments and with a definite tendency not to repeat designs but to create new ones. Most of the diapered designs of modern interior decorations were original with the Egyptians, and some of those found in the tombs uncovered in recent years have been adopted and adapted by modern designers. It is in the matter of jewelry particularly that the ability and the training of the old Egyptian workmen are most evident. It would be quite incredible to think that these workmen developed their artistic craftsmanship without training, and therefore there was at least the germ of a technical school or set of schools in oldest Egypt. It would be quite impossible to believe this only that we know so much more about other features of Egyptian education as anticipations of our own. A spe-

cial word about their jewelry then, because it illustrates a definite training quite different from that of our time, will not be out of place.

Their jewelry, it may be said at once, is in striking contrast with what we call jewelry in our time. It is true that we are in the midst of one of the worst periods of jewelry-making, but then we are so prone to think of anything very modern as representing the highest evolution, that the contrast is chastening and illuminating. Mr. Petrie has insisted on the beautiful jewelry, carved precious stones and gold ornaments of the very early period in Egypt. In our time we have no jewelry that deserves the name. I doubt whether we even know the real definition of jewelry, so I venture to repeat it. Jewels are precious stones themselves of value, usually of a high degree of hardness so that they do not deteriorate with time or wear, to which a greatly enhanced value is added by the handiwork of man. Jewels are made by artistic carving and cutting so that besides their precious quality as beautiful colored stones, they have an added charm and interest from human workmanship. We wear no such jewelry in our generation. What we have are merely precious stones. These by an artificial rigging of the market and a combination of the great commercial agencies that control the sale of diamonds and other precious stones, remain very expensive in spite of their comparative abundance. They are worn only because they are a display of the

amount of money that a person can afford to spend for mere ornaments.

There is nothing in these precious stones themselves that carries an appeal to the educated mind. It is true that they are pretty, but only with the prettiness of the play of rainbow colors that delights a childish or uncultured eye. It requires no taste to like them, no culture to appreciate them, and their cost alone gives them value. This is so true that those who possess a magnificent *parure* of diamonds often also have an imitation of them in cheaper stones that may be worn on most occasions. The danger of loss or the risk of robbery is so great that it has seemed worth while to have this imitation made in many cases. No one except an expert will recognize the difference, and if you are known to possess the real stones it will of course be supposed that you are wearing them. What gives them value as an adornment in the eye of the possessor, and presumably also of the onlookers, is the fact that they must have cost such a large sum of money. They are a vulgar display of wealth. They are typically barbaric and, worn in the profusion now so common, carry us back to the uncultured peoples who like to wear gaudy things. The taste is perhaps a little better, but the essential quality of mind that dictates the wearing of heavy brass rings and strings of beads and that which impels to the display of many diamonds, is hard to differentiate.

Artistic objects produce a sense of pleasure in

LIBRARY OF THE UNIVERSITY OF CALIFORNIA

the beholder, an appreciation of the beautiful handiwork of man. Precious stones worn as is now the custom produce only a sense of envy. Of course envy comes only to baser minds, but it is perfectly clear that most of those who are supposed to be affected by the sight of diamonds worn in profusion have this particular quality rather well developed. This distinction is often forgotten. Personal adornment as well as the adornment of one's house should be in order to give pleasure to others, and not merely a display of wealth for wealth's sake in such a way as is likely to produce envy. The old Egyptians made their jewelry with the true artistic sense. Flinders Petrie has told how beautifully they carved hard gems of various kinds and how the remains of these show us a people of good taste, even though their technique in the manufacture of such objects may have left something to be desired. In connection with this oldest of books it is important to recall this, for it shows that not alone in the applied wisdom of life and the knowledge gained from personal experience were these Egyptians of over 5,000 years ago brothers and sisters beyond whose wise saws we have not advanced, but also in the realm of art their work takes its place beside what is best in the modern time.

Some may be inclined to say that while the Egyptians may, as indeed we must admit they did, know many things about art and literature and practical wisdom, yet they did not have exact

knowledge. Their knowledge, though large and liberal, had not become scientific. This will scarcely be maintained, however, by any one who realizes how much of applied science there was in the building of the old temples and pyramids and how much they must have developed mechanics, applied and theoretic, in order to accomplish the tasks they thus set themselves. Cantor, the German historian of mathematics, acknowledged this and paid a worthy tribute to the old Egyptians' development of mathematics, pure and applied, in discussing the expression that had been used by Democritus, the early Greek geometer, who once declared that "In the construction of plane figures with demonstrations no one has yet surpassed me, not even the rope fasteners (harpedonaptai) of Egypt." For a long time this word harpedonaptai was a mystery, but Professor Cantor cleared it up, and explaining for us the exact meaning of the compound which means literally either rope fasteners or rope stretchers, he says, "There is no doubt that the Egyptians were very careful about the exact orientations of their temples and other public buildings. Old inscriptions seem to show that only the North and South lines were drawn by actual observation of the stars. The East and West lines were drawn at right angles to the others. Now it appears from the practice of Heron of Alexandria and of the ancient Indian and probably also the Chinese geometers, that a common method of

securing a right angle between two very long lines was to stretch round three pegs a rope measured in three portions which were to one another in the ratio 3:4:5. The triangle thus formed is right-angled. Further the operation of rope stretching is mentioned in Egypt, without explanation, at an extremely early time (Amenemhat I). If this be the correct explanation of it, then the Egyptians were acquainted 2,000 years B.C., with a particular ease of the proposition now known as the Pythagorean theorem."

This may not seem to mean very much. Yet what it illustrates is just this. These men wanted a certain development of mathematics. They needed it for the work that they were engaged at. They set themselves to the solution of certain problems and in doing so evolved a theorem in pure mathematics and an application of it which greatly simplified construction and gave an impetus to mechanics. In so doing they anticipated the work of a long after time. This is what I would insist is always true with regard to man. When he needs some intellectual development he makes it. When he requires an application of it he succeeds in working it out. Later ages may go farther, but had he needed further developments he evidently had the power to make them and probably would have made them.

The old Greeks had a much better opportunity to study Egyptian remains than we have, and especially was this true after the foundation of

Alexandria. There must have been a lively interest in things Egyptian aroused in the Greek minds by this Greek settlement in old Egypt. It is not surprising, then, to find some magnificent compliments to the old Egyptians in the mouths of some of the writers about the time of the foundation of Alexandria. Eudemus, for instance, the pupil of Aristotle, wrote the history of Geometry in which he traces its invention to the Egyptians, and states that the reason for its invention was its necessity in the remeasurement of land demanded after the removal of landmarks by the annual rise of the Nile. Always does one find this, that when there is a serious demand for an invention in theory or practice men make it. It is not a change or development in man that brings about inventions, but a change in his environment which causes new necessities to arise, and then he proceeds with an ability always the same to respond properly to those necessities.

Eudemus says: "Geometry is said by many to have been invented among the Egyptians, its origin being due to the measurement of plots of land. This was necessary there because of the rising of the Nile, which obliterated the boundaries appertaining to separate owners. Nor is it marvellous that the discovery of this and other sciences should have arisen from such an occasion, since everything which moves in development will advance from the imperfect to the per-

fect. From mere sense-perception to calculation, and from this to reasoning, is a natural transition."

The old Egyptians made some fine developments of arithmetic. These were afterwards lost and were reinvented probably several times. I have already quoted from Cantor the opinion that the Egyptians were familiar with the properties of the right triangle whose sides were in the ratio 3:4:5 over 4,000 years ago. In the *Papyrus* of Ahmes, whose contents probably come from before 2400 B.C., there are the solutions of many problems which show how far the Egyptians had gone in arithmetical calculations. For instance, there are methods of calculating the solid contents of barns. The solutions are not absolute but are very closely approximate. Ahmes has problems that were solved in connection with the pyramids, which make it very clear that the old Egyptians had more than a little knowledge of the principles of proportion, of certain geometrical figures and probably were familiar also with the simpler phases at least of trigonometry. The area of a circle is found in Ahmes by deducting from the diameter one-ninth and squaring the remainder, which gives a value for the ratio of the circumference to the diameter of a circle much more nearly correct than that used by most writers until comparatively recent times.

As a teacher of the history of medicine with certain administrative functions in a medical

school, I have been very much interested in the old-time medicine and above all the details of medical education that we find among the Egyptians. Ordinarily it would be assumed that there was so little of anything like medical education that it could be scarcely worth while talking about it. On the contrary, we find so much that is being constantly added to by discoverers, that it is a never-ending source of surprise. There is a well-grounded tradition founded on inscriptions that Athothis, the son of Menes, one of the early kings, wrote a work on anatomy. This king is said to have died about 4150 B.C. There are traces of the existence of hospitals at that time in which diseases were studied and medical attendants trained. Even earlier than this there was a great physician, the first physician of whom we have record in history, whose name was I-Em-Hetep, which means "the Bringer of Peace." He had two other titles, one of which was "the Master of Secrets," partly because he possessed the secrets of health and disease, very probably also because so many things had to be confided to him as a physician. Another of his titles was that of "The Scribe of Numbers," in reference, doubtless, to the fact that he had to use numbers so carefully in making out his prescriptions.

His first title, that of the bringer of peace, shows that very early in the history of medicine it was recognized that the physician's first duty was to bring peace of mind to his patients. A

distinguished French physician (Director) of the department of physiology of the University of Paris, Professor Richet, said not long since, that physicians can seldom cure, they can often relieve, but they can always console, and evidently this oldest physician took his duty of consolation seriously and successfully. He lived in the reign of King Tchser, a monarch of the Third Dynasty in Egypt, who reigned about 4500 B.C. or a little later. How much this first physician was thought of will be best appreciated from the fact that the well-known step pyramid at Sakkara, the old cemetery near Memphis, is called by his name. So great indeed was the honor paid to him that after his death he was worshipped as a god, and so we have statues of him seated with a scroll on his knees, with an air of benignant knowledge, a placid-looking man with a certain divine expression of sympathy well suited to his name, the bringer of peace. While they raised him to their altars he does not wear a beard as did all their gods and their kings when they were raised to the godly dignity, but evidently they felt that his humanity was of supreme interest to them.

There is another monument at Sakkara that is of special interest to us in its consideration of old-time medicine. I discussed it and its inscriptions in the *Journal of the American Medical Association* (Nov. 8, 1907). It is the tomb of a surgeon, decorated within with pictures of surgical operations. The grandeur of the tomb and its

location show us that the surgeon must have held a very prominent place in the community of that time. The date of this tomb is not later than 2500 B.C. Certain of the surgical operations resembled those done at the present time. There is the opening of a carbuncle at the back of the neck which shows how old are men's diseases and the modes of their treatment. After this the oldest monument in the history of medicine is documentary, the Ebers Papyrus, the writing of which is probably not much later than 1700 B.C. This consists, moreover, of a collection of older texts and suggestions in medicine, and some of the idioms are said to belong to several distant periods. It is probable that certain portions of this papyrus were composed not much later than the oldest book in the world, and that they date from nearly 3000 B.C. This papyrus is as interesting and as startling in its anticipation of some of our modern medical wisdom as is the Instruction of Ptah Hotep in the practical wisdom of life. This seems a good deal to say, but there is ample evidence for it.

According to Dr. Carl von Klein, who discussed the "Medical Features of the Ebers Papyrus" in some detail in the *Journal of the American Medical Association* about five years ago, over 700 different substances are mentioned as of remedial value in this old-time medical work. There is scarcely a disease of any important organ with which we are familiar in the modern

time that is not mentioned here. While the significance of diseases of such organs as the spleen, the ductless glands, and the appendix was of course missed, nearly every other pathological condition was either expressly named or at least hinted at. The papyrus insists very much on the value of history-taking in medicine, and hints that the reason why physicians fail to cure is often because they have not studied their cases sufficiently. While the treatment was mainly symptomatic, it was not more so than is a great deal of therapeutics at the present time, even in the regular school of medicine. The number and variety of their remedies and of their modes of administering them is so marvellous, that I prefer to quote Dr. von Klein's enumeration of them for you:

"In this papyrus are mentioned over 700 different substances from the animal, vegetable and mineral kingdoms which act as stimulants, sedatives, motor excitants, motor depressants, narcotics, hypnotics, analgesics, anodynes, antispasmodics, mydriatics, myotics, expectorants, tonics, dentifrices, sialogogues, antisialics, refrigerants, emetics, antiemetics, carminatives, cathartics, purgatives, astringents, cholagogues, anthelmintics, restoratives, hæmatics, alteratives, antipyretics, antiphlogistics, antiperiodics, diuretics, diluents, diaphoretics, sudorifics, anhydrotics, emmenagogues, oxytocics, ecbolics, galactagogues, irritants, escharotics, caustics, styptics, hæmostatics, emollients, demulcents, protectives, antizymotics,

disinfectants, deodorants, parasiticides, antidotes and antagonists."

Scarcely less interesting than the variety of remedies were their methods of administration:

"Medicines are directed to be administered internally in the form of decoctions, infusions, injections, pills, tablets, troches, capsules, powders, potions and inhalations; and externally, as lotions, ointments, plasters, etc. They are to be eaten, drunk, masticated or swallowed, to be taken often once only—often for many days—and the time is occasionally designated—to be taken mornings, evenings or at bedtime. Formulas to disguise bad tasting medicaments are also given." We have no advantages over the early Egyptians even in elegant prescribing.

The traditions with regard to Egyptian medicine which came to the Greeks seemed so incredible as we found them in the older historians that they used to be joked about. Herodotus came in for a good deal of this scoffing. He was said to be entirely too credulous and prone to exaggerate in order to add interest to his history, but every advance in our knowledge in modern time has confirmed what Herodotus has to say. In the eighteenth century Voltaire said of him, "The Father of history, nay, rather the Father of lies." That was Voltaire's way. Anything that was above him he scoffed at. Homer was a wandering minstrel such as you might find in the streets of Paris, Dante was a mediæval barbarian,

our own Shakespeare was a dramatic butcher, producing his effects by bloodshed and cruelty upon the stage. The nineteenth century has reversed Voltaire in every point of this, though some still listen to him in other matters. Above all, Herodotus has been amply justified by modern investigations. Herodotus tells us of the tradition of the number of different kinds of medical specialists in existence among the Egyptians. We are very prone to think that specialism is a development of modern medicine. What we know of Egypt shows us how old it is and makes it very clear that there must have been specialized modes of medical education for these many doctors who treated only very limited portions of the body and no other.

Herodotus tells us, to quote for you the quaint English of one of the old translations:

"Physicke is so studied and practised with the Egyptians that every disease hath his several physician, who striveth to excell in healing that one disease and not to be expert in curing many. Whereof it cometh that every corner of that country is full of physicians. Some for the eyes, others for the head, many for the teeth, not a few for the stomach and the inwards."

The Ebers Papyrus shows us that the specialties were by no means scantily developed. We have traditions of operations upon the nose, of remedies for the eyes there are many and the diagnosis and treatment of eye diseases are rather well

developed. The filling of teeth seems even to have been practised,* and while the traditions in this matter are a little dubious, the evidence has been accepted by some good authorities. This specialism in Egyptian medicine probably existed long before Herodotus, for he seems to speak of it as a very old-time institution in his time, and indeed Egypt had degenerated so much that it would be hard to believe that there was any such development there in his time. In the old temples they seem to have used many modes of treatment that we are likely to think of as very modern. Music for instance was used to soothe the worried, amusements of various kinds were employed to influence the disturbed mind favorably. In many ways some of the old temples resembled our modern health resorts. To them many patients flocked and were treated and talked about their ailments and went back each year for "the cure" once more, all the while being more benefited, as is true also in our own time, by the regularity of life, the regulation of diet and the mental influence of the place, than by any of the drugs or even the curative waters.

In a word, our study of old Egypt and Egyptian education shows us men doing things just about the way that our generation does them and succeeding just about as well as we succeed. They taught writing, spelling and composition as we do and the moral content of their teaching is admirable. They had training schools for the arts

* Burdett: "History of Hospitals."

and crafts, their taste is better than ours in many things, above all, they trained workmen very well, and the remains of their achievements are still the subject of our admiration. They solved mechanical problems in the building of the pyramids quite as well as we do. They made enough experiments that we would call chemical, to find enduring pigments for decorative purposes and they succeeded in making tools that enabled them to carve stonework beautifully. Even their professional education was not very different from our own and its results, particularly in the line of specialism, are startling anticipations of the most modern phase of medicine. They anticipated our interests in psychotherapy and some of them were mental healers, and more of them used the influence of the mind on the body than our physicians have been accustomed to until very recent years. Their physicians and surgeons were held in the highest veneration, and what we know of them shows that the judgment of the old Egyptians in this matter was very good and better than the average appreciation of physicians at the present time.

After all is said no one with any pretence to knowledge of the past would claim for a moment that we were doing better work in anything than men have done at many times in the history of culture. Our idea of progress is just one of these vague bits of self-sufficiency that each generation has had in its own time and that has made it feel

that somehow what it is accomplishing means much in the world's history. It is rather amusing to compare the estimate that any generation has of itself with the appreciation of it by succeeding generations. Especially is this true for generations separated by 100 yèars or more. Generations are only made up of men and women, and what man or woman is there who has not thought many times during life that though his or her work might not be estimated very highly by those close to it, this was due but to a sad lack of proper appreciation, since it represented certain qualities that well deserved admiration? We are all gifted with this precious self-conceit, which is not so bad a thing, after all, since it makes us work better than if we had a proper but much less exalted appreciation of our real worth. It is much easier to encourage people to do things than to scold or criticise them into doing them. We shall not quarrel with our generation, then, for being self-conceited,—it is made up of human beings,—but we shall try and not let a due appreciation of our accomplishment be smothered entirely, by this self-conceit.

After all, did not our favorite English poet of the late nineteenth century declare us to be "the heirs of all the ages in the foremost files of time," and how could it be otherwise than that we should be far ahead of the past, not only because the evolution of man made him more capable of handling difficult problems, but also because we

had the advantage of the accumulated wisdom such as it was of the past, of the observations and the conclusions of our forefathers and, of course, we were far ahead of them. This idea, however, so widely diffused that it might almost be spoken of as universal, has received many jolts in recent times, since we have come to try to develop the taste and the intellect of our people and not merely our material comforts and our satisfaction with ourselves. It has been pointed out, over and over again, in recent years that, of course, there is no such thing as progress in literature, that in art we are far behind many generations of the past, that in architecture there is not a new idea in the world since the sixteenth century, that in all these modes of human expression we are mere imitators and not originators. Our drama is literally and literarily a farce, and no drama that any one expects to live has been written for more than a century. Our buildings are replicas of old-time structures, no matter what their purpose, whether it be ecclesiastical, or educational, or municipal, or beneficiary.

Of course from the scientific standpoint this is, after all, what we might expect. In all the years of history of which we have any record there has been no change in the nature of man and no modification of his being that would lead us to expect from him anything different from what had been accomplished by man in the past. There is no change in man's structure, in the size of his

body in any way, in his anatomy or his physiology, in his customs, or ways of life, or in his health. The healthy still have about the same expectation of life, to use the life insurance term, and though we have increased the general average duration of life this has been at the expense of other precious qualities of the race. The healthy live longer, but the unhealthy also live longer. The weaklings in mind and body whom nature used to eliminate early are now a burden that must be cared for. In general it may be said, and Virchow, the great German pathologist, who was one of the world's great living anthropologists of his time—and that but a few years ago—used to insist, that man's skeleton and, above all, his skull as we can study them in the mummy of the olden time, were exactly the same as those that the race has now. Man cannot by thinking add a cubit to his stature, nor an inch to the circumference of his skull. The seventh generation of an academic family each member of which has been at the university in his time, is not any more likely to have special faculties for the intellectual life, indeed it is sometimes hinted that he has less of a chance than if his parents had been peasants for as long as the history of the family can be traced.

Of course this has no proper bearing on evolution from the biological standpoint, for the length of time that we have in human history may be conceded to be entirely inadequate to produce any noticeable changes on man's body or mind, grant-

ing that such were in progress. At the most we have 7,000 years of history and the evolutionists would tell us that this is as nothing in the unnumbered æons of evolution. In the popular estimation, however, evolution can almost be seen at work just as if one could see blades of grass growing by watching them closely enough. This impression of man's progress supposed to be supported by the theory of evolution is entirely unfounded. Just as his body is the same and his brain the same size, and the relative proportion of brain weight to body weight or at least to skull capacity the same now as they were 6,000 years ago; and this is true for both sexes, so that because women have smaller bodies by one-eighth they also have smaller skulls, and this, too, occurs among the mummies in Egypt quite as in our own time; so in what he is able to do with body and mind man is unchanged. Something of dexterity, of facility, of self-confidence and assurance of results is gained from time to time in history, but lost as often, because a few generations fail to be interested in what interested their immediate predecessors immensely.

It is not surprising, then, that history should show us at all times men doing work about like that which they did at any other time—provided they were deeply interested enough. The wisdom of the oldest book in the world, a father's advice to his son, is as practical in most ways as Gorgon Graham's letters to his boy—and ever so much

more ethical and true to life. The decorations of the old Egyptian tombs, the architecture of their temples, their ways and habits of life so far as we know them, all proclaim them men and women just like ourselves, certainly not separated from us by any gulf or even streamlet of evolution. What are more interesting than any supposed progress in mankind, are the curious ups and downs of interest in particular subjects which follow one another with almost definite regularity in history as we know it. Men become occupied with some phase of the expression of life, literature, architecture, government, sometimes in two or three of these at the same time, and then there comes a wonderful period of development. Just when this epoch reaches an acme of power of expression there come a self-consciousness and a refinement, welcomed at first as new progress, but that seem to hamper originality. Then follows a period of distinct decadence, but with a development of criticism of what was done in the past, with the formulation of certain principles of criticism. Just when by this conscious reflection it might be expected that man would surely advance rapidly, further decay takes place and there is a negative phase of power of expression, out of which man is lifted by a new generation usually neglectful of the immediate past, sometimes indeed deprecating it bitterly, though this new phase may have been awakened by a further past, which gets back to nature and to expression for itself.

The most interesting feature of history is how men have done things, wonderful things that subsequent generations are sure to admire and continue to admire whenever they have sense and training enough, yet forget about them. This is true not only for artistic productions but also for practical applications in science, for inventions, useful discoveries and the like. In surgery, for instance, though we have a continuous history of medicine, all of our instruments have been reinvented at least three or four times. After the reinvention we have been surprised to discover that previous generations had used these instruments long before us. Even the Suez Canal was undoubtedly open at least once before our time. Personally I feel sure that America was discovered at least twice before Columbus' time and that during several centuries there was considerable intercourse between Europe and America. It is extremely important for us then to realize these cycles in human progress and not to deceive ourselves with the idea that because we are doing something that immediately preceding generations knew nothing of, therefore we are doing something that never was done in the world before. This is particularly important for us now, for in my estimation the eighteenth was one of the lowest of centuries in human accomplishment, and therefore we may easily deceive ourselves as to our place in human history in this century.

Reflections of this kind are, it seems to me, particularly important for educators, especially in the midst of our tendency to accept evolution unthinkingly in this generation. Man's skull has not changed, his body has not been modified, his soft tissues are the same as they used to be. His brain is no different. Why, then, should he not have done things in the olden time just about as he does them now? We do not think that acquired characters are inherited. Oliver Wendell Holmes talks of Emerson as the seventh generation of an academic family, but there are none of us who think that this made it any easier for Emerson to acquire an education, or gave him a better development of mind. Those of us who have experience in education know that the descendant of a family of peasants for centuries or of farmers for many generations, easily outstrips some of the scions of academic families in intellect. It is the man that counts and not his descent.

Just this is true of generations as well as of individuals. Whenever men have set themselves to doing things they have accomplished about as good results at any time in history as at any other. We apparently do not benefit by the accumulation of the experience of our predecessors. At least we can find no trace of that in history. For a certain number of enterprising generations there is manifest upward progress. Then something always happens to disturb the succession of ideas, sometimes it is nothing more than

an over-refinement that leads to bad taste, and decadence takes the place of progress. The accomplishment of any particular generation, then, depends not on its place in any real or fancied scheme of evolution, but on its own ideals and its determined efforts to achieve them.

There are people who insist that this doctrine is pessimistic and discouraging and that, if we do not keep before men the consoling feeling that they are advancing beyond their forebears, there is not the same incentive to work as there would be under other circumstances. On the contrary, as it seems to me, this other idea that everything depends on ourselves and not on our predecessors, constitutes the highest form of incentive. We at the present time are far below many preceding generations in art, literature, architecture, arts and crafts and many developments of taste. Here is no evolution, but the story of how each generation sets itself to work. Why, then, should we think that in education, one of the highest of the arts, the moulding of the human mind into beautiful shapes instead of the moulding of more plastic material, we should be far ahead of the past and, therefore, in a position to find no precious lessons in it? The history of education not alone of the last three centuries of education, but of at least 6,000 years of education, is worth while knowing and it magnificently exemplifies how old is the new in education.

THE FIRST MODERN UNIVERSITY

"What is it that hath been? The same thing that shall be. What is it that hath been done? The same that shall be done."—*Ecclesiastes i: 10.*

"To one small people . . . it was given to create the principle of Progress. That people was the Greek. Except the blind forces of nature, nothing moves in this world which is not Greek in its origin."—MAINE.

THE FIRST MODERN UNIVERSITY*

WE are very prone to think that our universities represent new developments in the history of humanity. We are aware that there were great educational institutions in the world at many times before the present, and that some of them profoundly affected the intellectual life of their time; we are likely to think, however, that these institutions were very different from our modern universities. They were not so well organized, they lacked endowments, their departments were not co-ordinated, they did not have the libraries and, of course, not the laboratory facilities that our modern universities have, and then, above all, they did not devote themselves to that one department of knowledge, physical science, in which absolute truth can be reached, and in which each advance in knowledge as made can be chronicled and set down as a sure basis for future work and workers in the same line for all time.

* The material for this address was gathered for lectures on the History of Education at St. Mary's Seminary, Scranton, Pa., and St. Joseph's College, Chestnut Hill, Philadelphia. It was largely added to for the introductory lecture in a course to the teachers of the parochial schools of Philadelphia, March, 1910. Very nearly in its present form it was delivered before the Brooklyn Institute of Arts and Sciences as the second lecture in the course on "How Old The New Is," April, 1910.

The older institutions of learning were given up to speculation, to idealism, to metaphysics, and, of course, therefore, their work, as many educated people are now prone to look at it, was too shadowy to last, too cloudy to serve as a foundation for any enduring scientific knowledge. I do not think that I exaggerate when I make this as the statement of the thought of a good many people of our time who are at least supposed to be educated and who consider that they are reasonably familiar with the educational institutions of the past.

It has seemed to me, then, that it would be interesting and opportune to trace the origin, the development and the accomplishments of the first institution of learning that is very similar to our own; and to retrace some of the achievements of its professors, the circumstances in which they were done and the conditions surrounding an ancient school which I think our study will make clear as well deserving of the title of the first modern university. This was not the collection of schools at Athens, though there is no doubt at all that great intellectual and educational work was accomplished there, but not in our modern university sense. The schools were independent, and while the rivalry engendered by this undoubtedly did good so long as genius ruled in the schools, it brought about a degeneration into sophistry, from here comes the word, and argumentativeness, once the great master had been dis-

placed by disciples who were sure that they knew their master's mind, and probably thought, as disciples always do, that they were going beyond their master, but who really occupied themselves with curious and trifling tergiversations of mind within the narrow circle of ideas laid down by the master,—as has nearly always been the case.

The first modern university was that of Alexandria. It was quite as much under Greek influence as the schools of Athens. There have been commentators on the story of Cleopatra, who have suggested that her African cast of countenance did not prove a deterrent to her success as a conqueror of hearts, and who argue from this to the fact that it is not physical charm but personality that counts in woman's power over men, quite forgetting, if they ever knew, that Cleopatra was a Greek of the Greeks, a daughter of the line of the Ptolemys, probably a direct descendant though with the bar sinister of Philip of Macedon, born of a house so watchful over its Greek blood and so resentful of any possible admixture of anything less noble with itself, that for generations it had been the custom for brother to marry sister, in order that the race of the Ptolemys might be perpetuated in absolute purity. Alexandria, while a cosmopolitan city in the inhabitants who dwelt in it and in the wide diffusion of commercial interests that centred there as a mart for East and West, was absolutely ruled by Greeks and represents for many centuries after

the decline of Athens had come, the brightest focus of Greek intellectual life, Greek culture and art, Greek letters and education and every phase of that Greek influence in æsthetics which has always meant so much in the world's history.

The interesting fact about Alexandria in the history of education, is that it was the home of a modern university in every sense of that term, having particularly the features that many people are prone to think of as representing modern evolution in education. The buildings of the university were erected practically by a legacy left by the great Conqueror himself, Alexander. The central point of interest in the university was a great library, the nucleus of which was the library of Aristotle, tutor of Alexander, which had been collected with the help of that great Conqueror and was the finest collection of books in the world of that time. The main subject of interest in the university was physical science and its sister subject mathematics, which raises mere nature-study into the realm of science, and this scientific physical education was conducted in connection with the great museum or collection of objects of interest to scientists that had also been made partly by Aristotle himself and partly for his loved tutor by the gratitude of Alexander during his conquering expeditions in the far East. Finally professors were attracted to Alexandria by the offer of a better salary than had ever been paid at educational institutions before this, and

by the additional offer of a palace to live in, supplied by the ruler of the country. It is no wonder, then, that in attendance also, as well as in the prestige of its professors, Alexandria resembled a modern university.

It was its devotion to science, however, that especially characterized this first great institution of learning of which we have definite records. This devotion to science went so far that even literature was studied from the scientific standpoint. Such details as we have of the instruction at Alexandria and the books that have come down to us, all show men interested in philology, in comparative literature, in grammar and comparative grammar, rather than in the idealistic modes of knowledge. We have commentaries on the great authors, but no great original works of genius in literature from the professors of Alexandria. The translation of the Septuagint version of the Old Testament is a typical example of the sort of work that was being done at Alexandria. They collected the documents of the nations and translated them for purposes of comparative study. It was an education for information rather than for power. The main idea of the time and place was to know as much as possible about literature, rather than to know what it represented in terms of life, and the real meaning of both literature and life was obscured in the study about and about them. People studied books about books rather than the books them-

selves. There was much writing of books about books, and it was nearly always comparatively trivial things in the great authors that attracted most attention from the many scholiasts, critics, editors, commentators, lecturers of the time.

Personally I could well understand such an incident happening at Alexandria as is said to have happened at a well-known English (of course not American!) university not long ago. The class was construing Shakespeare and one of the students asked the professor what the meaning of a particular figure used by the great dramatist was. The professor replied that they were there to construe Shakespeare's language and not bother about his meaning—yet it was a class in literature. Literature in recent years as studied at the universities has come to be quite as scientific in its modes and methods as it was at the University of Alexandria. May I also add that it has become quite as sterile of results of any importance. There is very little real study of literature, practically no encouragement of the attempt to draw inspiration from the great authors, but all devotion to the grammar, to the philology, to comparative literature as exemplified in the old writers.

Books were the great essentials at Alexandria. This is not surprising seeing that the university was founded around a great library, and that this library continued to be the greatest in the world in its time. Every student who came to Alexandria bringing a book with him of which there was

no copy in the library, was required by a decree of the authorities to leave a copy behind him. In all the university towns of the times—and there were many founded in the rising eastern cities of Alexander's empire, as it gradually crumbled into smaller pieces providing new capitals with less power but with quite as much national feeling as the capital cities of larger states, libraries became the fashion and a city's main claim to prestige in education and the intellectual life was the number of its books. Antioch, Tarsus, Cos, Cnidos and Pergamos are examples of this state of affairs. Pergamos was so jealous of the prestige of the Alexandrian Library that it forbade the exportation of parchment, an invention of Pergamos which received its name from that city. Petty jealousies were quite as much the rule among educational institutions then as they have been at any time since.

To many people it will seem quite absurd to talk of Alexandria as having done serious scientific work because the methods of science and scientific investigation are supposed to have been, as they think, discovered by Lord Bacon in the seventeenth century. It is curious how many educated people, or at least supposedly educated people, have this as their basic notion of the history of science. Men wandered in the mazes of inductive reasoning utterly unable to bring observations together in such a way as to discover laws, utterly incompetent to note phenomena and

bring them into relations to one another so as to show their scientific bearing, until Queen Elizabeth's Lord Chancellor came to show the way out of the labyrinth and leave the precious cord through its corridors, by which others may easily thread their way into the free air of scientific truth. I know nothing that is more absurd than this. It is a commonplace among educators, however; it is frequently referred to in educational addresses as if it were a universally accepted proposition, and to dispute it would seem the rankest kind of scientific heresy to these narrow minds. Fortunately there are two writers, Macaulay and Huxley, to whom even these people are likely to listen, who have expressed themselves with regard to this precious historic superstition that Lord Bacon invented the inductive method of reasoning with what my long-worded friend would call appropriate opprobrium.

Macaulay says: "The inductive method has been practised ever since the beginning of the world by every human being. It is constantly practised by the most ignorant clown, by the most thoughtless schoolboy, by the very child at the breast. That method leads the clown to the conclusion that if he sows barley he shall not reap wheat. By that method the schoolboy learns that a cloudy day is the best for catching trout. The very infant, we imagine, is led by induction to expect milk from his mother or nurse, and none from his father. Not only is it not true that

Bacon invented the inductive method; but it is not true that he was the first person who correctly analyzed that method and explained its uses. Aristotle had long before pointed out the absurdity of supposing that syllogistic reasoning could ever conduct men to the discovery of any new principle, had shown that such discoveries must be made by induction, and by induction alone, and had given the history of the inductive process, concisely indeed, but with great perspicuity and precision."

And Huxley quite as emphatically points out: "The method of scientific investigation is nothing but the expression of the necessary mode of working of the human mind. It is simply the mode by which all phenomena are reasoned about—rendered precise and exact."

While the whole trend of education, even that of literature, was scientific at Alexandria, the principal feature of the teaching was, as we have said, concerned with the physical sciences and mathematics. It is in mathematics that the greatest triumphs were secured. Euclid's "Geometry," as we use it at the present time in our colleges and universities, was put into form by Euclid teaching at the University of Alexandria in the early days of the institution. Euclid's setting forth of geometry was so perfect that it has remained for over 2,000 years the model on which all text-books of geometry of all the later times have been written. There seems no doubt that

writers on the history of mathematics are quite justified in proclaiming Euclid's "Geometry" as one of the greatest intellectual works that ever came from the hand of man. The first Ptolemy was fortunate in having secured this man as the founder of the mathematical department of his university. His example, the wonderful incentive of his work, the absolute perfection of his conclusions, must have proved marvellous emulative factors for the students who flocked to Alexandria.

Commonly mathematicians are said to be impractical geniuses so occupied with mathematical ideas that their influence in other ways counts for little in university life. If we are to believe the stories that come to us with regard to Euclid, however, and there is every reason to believe them, for some of them come from men who are almost contemporaries, or from men who had their information from contemporaries, Euclid's influence in the university must have been for all that is best in education. Proclus tells the story of King Ptolemy once having asked Euclid, if there was any shorter way to obtain a knowledge of geometry than through the rather difficult avenue of Euclid's own text-book, and the great mathematician replied that there was "no royal road to geometry." Stobæus relates the story of a student who, having learned the first theorem, asked "but what shall I make by learning these things?" The question is so modern that Euclid's

answer deserves to be in the memory of all those who are interested in education. Euclid called his slave and said, "Give him twopence, since he must make something out of everything that he does, even the improvement of his mind."

Probably even more significant than the tradition that Euclid did his work at this first modern university, and that besides being a mathematician he was a man of very practical ideas in education, is the fact that he was appreciated by the men of his time and that his work was looked up to with highest reverence by his contemporaries and immediate successors as representing great achievement. It is not ever thus. Far from resenting in any way the magnificent synthesis that he had made of many rather vague notions in mathematics before his time, his contemporaries united in doing him honor. They realized that his teaching created a proper scientific habit of mind. Pappus says of Apollonius that he spent a long time as a pupil of Euclid at Alexandria and it was thus that he acquired a thorough scientific habit of mind. After Euclid's time the value of his discoveries as a means of training the mind was thoroughly appreciated. The Greek philosophers are said to have posted on the doors of their schools "Let no one enter here who does not know his Euclid." In the midst of the crumbling of old-fashioned methods of education in the introduction of the elective system, in the modern time, many of our best educators have insisted

that at least this portion of mathematics, Euclid's contribution to the science, should be a required study, and most educators feel, even when there is question of law or medical study, that one of the best preparations is to be found in a thorough knowledge of Euclid.

Almost as wonderful as the work of Euclid was that of the second great mathematician of the Alexandrian school, Archimedes, who not only developed pure mathematics but applied mathematical principles to mechanics and proved besides to have wonderful mechanical ability and inventive genius. It was Archimedes of whom Cicero spoke so feelingly in his " Tusculan Disputations," when about a century and a quarter after Archimedes' death, he succeeded in finding his tomb in the old cemetery at Syracuse during his quæstorship there. How curious it is to think that after so short a time as 127 years from the date of his death Archimedes was absolutely forgotten by his fellow-Syracusans, who resolutely denied that any trace of Archimedes' tomb existed. This stranger from Rome knew much more of Archimedes than his fellow-citizens a scant four generations after his time. Not how men advance, but how they forget even great advance that has been made, lose sight of it entirely at times and only too often have to rediscover it, is the most interesting phase of history. Cicero says, " Thus one of the noblest cities of Greece and one which at one time had been very cele-

brated for learning, knew nothing of the monument of its greatest genius until it was rediscovered for them by a native of Arpinum"—Cicero's modest designation for himself.

We have known much more about Archimedes' inventions than about his mathematical works. The Archimedian screw, a spiral tube for pumping water, invented by him, is still used in Egypt. The old story with regard to his having succeeded in making burning mirrors by which he was enabled to set the Roman vessels on fire during the siege of Syracuse, used to be doubted very seriously and, indeed, by many considered a quite incredible feat, clearly an historical exaggeration, until Cuvier and others in the early part of the nineteenth century succeeded in making a mirror by which in an experiment in the Jardin des Plantes in Paris wood was set on fire at a distance of 140 feet. As the Roman vessels were very small, propelled only by oars or at least with very small sail capacity, and as their means of offence was most crude and they had to approach surely within 100 feet of the wall to be effective, the old story therefore is probably entirely true. The other phase of history according to which Archimedes succeeded in constructing instruments by which the Roman vessels were lifted bodily out of the water, is probably also true, and certainly comes with great credibility of the man of whom it is told that, after having studied the lever, he declared that if he only had

some place to rest his lever, he could move the world.

The well-known story of his discovery in hydrostatics, by which he was enabled to tell the King whether the royal goldsmiths had made his crown of solid gold or not, is very well authenticated. Archimedes realized the application of the principle of specific gravity in the solution of such problems while he was taking a bath. Quite forgetful of his state of nudity he ran through the streets, crying "Eureka! Eureka! I have found it! I have found it!" There are many other significant developments of hydrostatics and mechanics, besides specific gravity and the lever, the germs of which are at least attributed to Archimedes. He seems to have been one of the world's great eminent practical geniuses. That he should have been a product of Alexandria and should even have been a professor there would be a great surprise if we did not know Alexandria as a great scientific university. As it is, it is quite easy to understand how naturally he finds his place in the history of that university and how proud any modern university would be to have on the rolls of its students and professors a man who not only developed pure science but who made a series of practical applications that are of great value to mankind. Such men our modern universities appropriately claim the right to vaunt proudly as the products of their training.

When we analyze something of the work in

pure mathematics that was accomplished by Archimedes our estimation of him is greatly enhanced. His work "On the Quadrature," that is the finding of the area of a segment of the parabola, is probably his most significant contribution to mathematical knowledge. His proof of the principal theorem in this is obtained by the "method of exhaustion," which had been invented by Eudoxus but was greatly developed by Archimedes. This method contains in itself the germ of that most powerful instrument of mathematical analysis in the modern time, the calculus.

Another very important work was "The Sphere and the Cylinder." This was more appreciated in his own time, and as a consequence, after his death the figure of a sphere inscribed in a cylinder was cut on his tomb in commemoration of his favorite theorem, that the volume of the sphere is two-thirds that of the cylinder and its surface is four times that of the base of the cylinder. It was by searching for this symbol, famous in antiquity, that Cicero was enabled to find his tomb according to the story that I have already related.

Within the last few years the reputation of Archimedes in pure mathematics has been greatly enhanced by the discovery by Professor Heiberg of a lost work of the great Alexandrian professor in Constantinople. Archimedes himself stated in a dedication of the work to Eratosthenes the method employed in this. He says: "I have thought it well to analyze and lay down for you

in this same book a peculiar method by means of which it will be possible for you to derive instruction as to how certain mathematical questions may be investigated by means of mechanics. And I am convinced that this is equally profitable in demonstrating a proposition itself, for much that was made evident to me through the medium of mechanics was later proved by means of geometry, because the treatment by the former method had not yet been established by way of a demonstration. For of course it is easier to establish a proof, if one has in this way previously obtained a conception of the questions, than for him to seek it without such a preliminary notion. . . . Indeed, I assume that some one among the investigators of to-day or in the future, will discover by the method here set forth still other propositions which have not yet occurred to me." On this Professor Smith comments: "Perhaps in all the history of mathematics no such prophetic truth was ever put into words. It would almost seem as if Archimedes must have seen as in a vision the methods of Galileo, Cavalieri, Pascal, Newton, and many other great makers of the mathematics of the Renaissance and the present time."

Many other distinguished professors of mathematics have, since this declaration of Archimedes came under their notice, declared that he must have had almost a prophetic vision of certain developments of mathematics and especially applied

mathematics and mechanics and their relation to one another, that were only to come in much later and indeed comparatively modern times. Undoubtedly Archimedes' works proved the germ of magnificent development not only immediately after his own time but in the long-after time of the Renaissance, when their translation awakened minds to mathematical problems and their solutions that would not otherwise have come.

We know much less of the life of the third of the great trio of teachers and students of Alexandria, Apollonius of Perga. Perhaps it should be enough for us to know that his contemporaries spoke of him as "the great geometer," though they were familiar with Euclid's book and with Archimedes' mighty work. Apollonius was surely a student of Alexandria for many years and he was probably also a professor of mathematics there. He developed especially what we know now as conic sections. His book on the subject contains practically all of the theorems to be found in our text-books of analytical geometry or conic sections of the present time. It was developed with rigorous mathematical logic and Euclidean conclusiveness. These three men show us beyond all doubt how finely the mathematical side of the university developed.

After Archimedes the greatest mechanical genius of the University of Alexandria was Heron. To him we owe a series of inventions and discoveries in hydrostatics and the construc-

tion of various mechanical toys that have been used in the laboratories since. There is even a little engine run by steam—the æolipile—invented by him, which shows how close the old Greeks were to the underlying principles of discoveries that were destined to come only after the development of industries created a demand for them in the after time. Heron's engine is a globe of copper mounted on pivots, containing water, which on being heated produces steam that finds its way out through tubes bent so as to open in opposite directions on each side of the globe. The impact of the escaping steam on the air sets the globe revolving, and the principle of the turbine engine at work is clear. We have used steam for nearly 200 years always with a reciprocating type of movement, so that to apply energy in one direction the engine has had to move its parts backwards and forwards, but here was a direct-motion turbine engine in the long ago. Our great steamboats, the *Lusitania* and the *Mauretania,* now cross the ocean by the use of this principle and not by the reciprocating engine, and it is evident that it is along these lines the future developments of the application of steam are to take place.

Another extremely interesting invention made by Heron is the famous fountain called by his name, and which still is used to illustrate principles in pneumatics in our classrooms and laboratories. By means of condensed air water is made

LIBRARY OF THE UNIVERSITY OF CALIFORNIA

to spring from a jet in a continuous stream and seems paradoxically to rise higher than its source. Probably his best work in the domain of physics is that on pneumatics in which are given not only a series of discussions, but of experiments and demonstrations on the elasticity of air and of steam. These experiments could only have been conducted in what we now call a physical laboratory. Indeed these inventions of his are still used in laboratories for demonstration purposes. While we may think, then, that the foundation of laboratories was reserved to our day, there is abundant evidence for their existence at the University of Alexandria. We shall return to this subject a little later, when the evidence from other departments has been presented, and then it will be clear, I think, that the laboratory methods were favorite modes of teaching at the University of Alexandria and were in use in nearly all departments of science both for research and for demonstration purposes.

The work of the other great teacher at Alexandria which was to influence mankind next to that of Euclid, was not destined to withstand the critical study of succeeding generations, though it served for some 1,500 years as the basis of their thinking in astronomy. This was the work of Ptolemy, the great professor of astronomy at Alexandria of the first century after Christ. It is easy for us now to see the absurdity of Ptolemy's system. It is even hard for us to

understand how men could have accepted it. It must not be forgotten, however, that it solved all the astronomical problems of fifteen centuries and that it even enabled men, by its application, to foretell events in the heavens, and scientific prophecy is sometimes claimed to be the highest test of the truth of a system of scientific thought. Even so late as 1620 Francis Bacon refused to accept Copernicanism, already before the world for more than a century, because it did not, as it seemed to him, solve all the difficulties, while Ptolemy's system did. As great an astronomer as Tycho Brahe living in the century after Copernicus still clung to Ptolemy's teaching. It must not be forgotten that when Galileo restated Copernicanism, the reason for the rejection of his teaching by all the astronomers of Europe almost without exception, was that his reasons were not conclusive. They preferred to hold on to the old which had been so satisfying than to accept the new which seemed dubious. Their wisdom in this will be best appreciated from the fact that none of Galileo's reasons maintained themselves.

Though his system has been rejected, still Ptolemy must be looked up to as one of the great teachers of mankind and his work the "Almagest" as one of the great contributions to human knowledge. The fact that he represented a climax of astronomical development at Alexandria some four centuries after the foundation of

that university, serves to show how much that first modern university occupied itself for all the centuries of its highest prestige, with physical science as well as with mathematics. Astronomy, physics, especially hydrostatics and mechanics, were all wonderfully developed. Generations of professors had given themselves to research and to the publication of important works quite as in the modern time, and Alexandria may well claim the right to be placed beside any university for what it accomplished in physical science, and rank high if not highest in the list of great research institutions adding new knowledge to old, leading men across the borderland of the unknown in science and furnishing that precious incentive to growing youth to occupy itself with the scientific problems of the world around it.

The most important part of the scientific work of the University of Alexandria to my mind remains to be spoken of, and that is the medical department. It is a well-known law in the history of medicine that, whenever medical schools are attached to universities in such a way that students who come to the medical department have been thoroughly trained by preliminary studies and have such standards of scholarship as obtain in genuine university work, then great progress in medicine and in medical education is accomplished. This was eminently the case at Alexandria. The departments of the arts, of linguistics and of philosophy were gathered

around the great building known in Greek as the Mouseion, a word that has come to us through the Latin under the guise of Museum. This temple of the Muses contained collections of various kinds and near it was situated the great library. Not far away was the Serapeum, or Temple of Serapis, the Goddess of Life, around which were centred the biological sciences, and close by was the medical school. As teachers for this medical school some of the greatest physicians of the time were secured by the first Ptolemy and a great period in medical history began.

The practical wisdom guiding the Ptolemys in the organization of this medical school will be best appreciated from the fact that they took the first step by inviting two distinguished physicians, the products of the two greatest medical schools of the time, to lay the foundations at Alexandria. They were probably the best investigators of their time and they had behind them fine traditions of research, thorough observation and conservative reasoning and theorizing on scientific subjects. Erasistratos was a disciple of Metrodoros, the son-in-law of Aristotle. He had studied for a time under another great teacher, Chrysippos of Cnidos. We are likely to know much more of Cos than of Cnidos because of the reputation in the after time of Hippocrates, whose name is so closely connected with Cos that the two are almost invariably associated, but Cnidos was one of the great university towns of the later Greek

civilization. Eudoxus the astronomer, Ctesias the writer on Persian history, and Sostratos the builder of the great lighthouse, one of the seven wonders of the world, the Pharos at Alexandria, were products of this university. Its medical school was famous when Cos had somewhat declined, and Chrysippos was one of the leading physicians of the world and one of the acknowledged great teachers of medicine when Erasistratos studied under him at Cnidos, and obtained that scientific training and incentive to original research which was to prove so valuable to Alexandria.

His colleague, Herophilos, was quite as distinguished as Erasistratos and owed his training to the rival school of Cos. Whether it was intentional or not to secure these two products of rival schools for the healthy spirit of competition that would come from it, and because they wanted to have at Alexandria the emulation that would naturally be aroused by such a condition, is not known, but there can be no doubt of the wisdom of the choice and of the foresight which dictated it. Herophilos had studied medicine under Praxagoras, one of the best-known successors of Hippocrates. While distinguished as a surgeon he had more influence on medicine than almost any man of his time, except possibly Erasistratos. He was, however, a great anatomist and, above all, a zoologist who, according to tradition, had obtained his knowledge of animals from the most

careful zootomy of literally thousands of specimens. His fair fame is blackened by the other tradition that he practised vivisection on human beings—criminals being turned over to him for that purpose by the Ptolemys, who were deeply interested in his researches. The traditions in this matter, however, serve to confirm the idea of his zeal as an investigator and his ardent labors in medical science. Tertullian declares that he dissected at least 600 living persons. We know that he did much dissection of human cadavers and there is question whether Tertullian's statement was not gross exaggeration due to confusion between dissection and vivisection.

Both of these men did some magnificent work upon the brain. This being the first period in the history of humanity when human beings could be dissected freely, it is not surprising that they should take up brain anatomy with ardent devotion, in the hope to solve some of the many human problems that seemed to centre in this complex organ. Before this anatomy had been learned mainly from animals, and as human beings differ most widely from animals by their brain, naturally, as soon as the opportunity presented itself, anatomists gave themselves to thorough work on this structure where so many discoveries were waiting to be made. After the brain and nervous system the heart was studied, and Erasistratos' description of its valves, of its general structure and even of its physiology, show how much he

knew. To know something of the work of these two anatomists is to see at once what is accomplished in a university medical school where medical science, and not the mere practice of medicine alone, is the object of teachers and students. I have told the story of this in my address before the graduates of the St. Louis Medical University Medical School, and here I shall simply refer you to that.*

Of course all these studies at the university could not be conducted without laboratory equipment. Of itself the dissecting room is a laboratory and until very recent years it was the only laboratory that most of the medical schools had. The numerous experiments in vivisection, if they really took place, required special arrangements and could only be conducted in what we now call a laboratory of physiology. This is not idle talk but represents the realities of the situation. Other laboratories there must have been. It would be quite impossible to conceive of a man like Archimedes carrying on his work, especially of the application of mathematical principles to mechanics, of the demonstration of mechanical principles themselves and of the invention of the many interesting machines which he made, without what we call laboratory facilities. The Ptolemys were

* The details of what was accomplished in the Medical Department at Alexandria were given to some extent at least in the lecture in Brooklyn, but are omitted here in order to avoid repetitions in the printed copy.

interested in his work, they supplied him with a place to do it, many of his advanced students at least must have been interested in this work so that, as I see it, there was what we would now call a physical laboratory in connection with his teaching at the University of Alexandria.

What we know about the development of zoology under Erasistratos and Herophilos would seem to indicate that there must have been such special facilities for the investigation of zoological problems as we would call a laboratory of physiology. A magnificent collection of plants was made for the university and these were studied and classified, and while we hear nothing of their dissection, there were at least botanical rooms for methodical study, if not botanical laboratories. Ptolemy's work represented the culmination of astronomical information which had been gathered for several centuries. This could only be brought together in what we would now call an observatory and this represents another laboratory of physical science. Our laboratory work, therefore, must have been anticipated to a great extent. We must not forget that our university laboratories are only a couple of generations old altogether and that they represent a very recent development of educational work. It is extremely interesting, therefore, to find them anticipated in germ at least, if not in actuality, at the first modern university of which we have sufficiently complete records to enable us to ap-

preciate just the sort of work that was being done and the ways and modes of its education.

I think that even this comparatively meagre description of the first university of which we have knowledge makes it very clear that Alexandria deserves the name of the First Modern University. It resembled our own in so many ways that I, for one, find it impossible to discover any essential difference between them. At Alexandria they anticipated every phase of modern university education. Their literature was studied from a scientific standpoint. They devoted themselves to an overwhelming extent to the study of the physical sciences and mathematics, their professors were inventors, developers of practical applications of science, experts to whom appeal was made when important scientific questions had to be settled, and their teaching was done with demonstrations and a laboratory system very like our own. Nothing that I know illustrates better the tendency of human achievement not to represent advance but to occur in cycles than the story of this first modern university. That is why I have tried to tell it to you as an exquisite illustration of How Old the New Is in Education.

MEDIÆVAL SCIENTIFIC UNIVERSITIES

"Qui ad pauca respiciunt faciliter pronuntiant."—An Old Philosopher.

[Those who know little readily pronounce judgment.]

LIBRARY OF THE UNIVERSITY OF CALIFORNIA

MEDIÆVAL SCIENTIFIC UNIVERSITIES *

PROBABLY nothing is more surprising to any one who knows the history of science and of scientific education than the attitude of mind of the present generations, educated as they are mainly along scientific lines, toward the supposed lack of interest of preceding generations in science. Our scholars and professors seem to be almost universally of the opinion that the last few generations are the first who ever devoted themselves seriously to the study of science, or who, indeed, were free enough from superstitions and persuasions and beliefs of many kinds to give themselves up freely to scientific investigation. In the light of what we know or, perhaps I should say, what we are coming to know now with regard to the educational interests of the men of the various times, this would be an amusing, if it were not an amazing, presumption on our part. Over and over again in the world's history men have been in-

* The material for this address was originally gathered for a lecture in a course on the History of Education delivered to the Sisters of Charity of Mount St. Vincent's, some 500 in number; teachers in the Catholic public schools of New York City, and for corresponding lectures to the Academy of the Sacred Heart, Kenwood. The address was delivered substantially in its present form at the Catholic Club of Cornell University, under the title "The Relations of the Church to Science."

terested in science, both in pure science and in applied science, in the culture sciences and in the practical sciences.

Apparently men forget that philosophy is science and ethics is science and metaphysics is scientific and logic is science and there is a science of language. Of course the protest that will be heard at once is that what we now mean by science is physical science. Even taking the word science in this narrower sense, however, how can people forget that our mathematics comes to us from the old Greeks, that old Greek contributions to medicine and, above all, to the scientific side of it still remain valuable, that physical science, pure and applied, developed wonderfully at the University of Alexandria, that there was a beginning of chemistry and the great foundations of astronomy laid in the long ago, and that men evidently were quite as much interested in the problems of nature around them as they have been at any time: Archimedes insisting that if he only had some place to rest his lever he could move the world, inventing the screw pump, fashioning his great burning-mirrors, and a little later Heron inventing the first germ of the turbine engine, while all the time their colleagues and contemporaries were developing the mathematics in connection with them, are studying both pure and applied science. It is simply failure to state in terms of the present what was accomplished in the past, that has permitted people to retain

curious notions of the absence of science in antiquity.

Probably most people would be quite ready to concede, and especially after even a brief calling to their attention of some educational facts, that the old Greeks did enjoy a scientific educational development; it would probably even be admitted that the traditions of science of various kinds from Egypt, from Chaldea, from Babylonia point to previous eras of scientific development. They would probably still insist, however, that there had been a long interval of utter neglect of science lasting nearly 2,000 years and that our interest is properly a resurrection of science-study after a long burial. They do not even hesitate to blame the educational authorities of the interval for their failure to occupy themselves with scientific ideas and are prone to find reasons of various kinds to account for this failure. As the Church was dominant in education during the Middle Ages this makes a ready scapegoat, and so we have heard much of the repression of scientific study by the ecclesiastical authorities, and the determined effort made to keep men from inquiring about the problems of nature around them, because this would lead them to think for themselves and have doubts with regard to faith. Indeed this attitude of mind in the history of science is so usual that it is a commonplace, and men who are supposed to be scholars talk offhandedly of direct Church opposition to science.

There is no doubt at all that the Church was the commanding influence in education during the Middle Ages. Whatever was studied was taken up because the Church authorities were interested in it. Whatever was not studied was absent from the curriculum because of their lack of interest. While study was magnificently encouraged there were many subjects, though not near so many as is often thought, that were repressed. The Church must certainly be held responsible in every way for the teaching of the Middle Ages, both as regards its extent and its limitations. The charters of the universities were granted by the Popes. The universities themselves usually were cathedral schools which had developed, and to which had become attached various graduate departments. The ecclesiastical authorities were in control of them. The rector of the university was usually the archdeacon of the cathedral or the chancellor of the diocese. The professors at the universities were practically all of them in clerical orders, and the great body of the students were clerics, in the sense that they had assumed at least minor orders and were supposed to be in preparation for a clerical life. This was, indeed, the one sure way to secure exemption from the military duties of the time and to prevent interference of various kinds by the civil power with the leisure necessary for study. No man had any essential rights in the Middle Ages except such as were conferred on him by some organization

to which he belonged, and the clerical order was particularly powerful.

Now the interesting phase of the education afforded by these universities under ecclesiastical control with clerical students and professors constituting the large majority of members, with the influence of the religious orders paramount for centuries, is that it was entirely scientific in character and largely occupied with the physical sciences, though the culture sciences formed the basis of it. Huxley, though he is surely the last man of recent times who would be suspected for a moment of exaggerating the scientific significance of mediæval education, recognized this fact very well and stated it very emphatically. In his Inaugural Address on Universities Actual and Ideal, delivered as Rector of Aberdeen University, after discussing the subject with evident careful preparation, he said:

"The scholars of the mediæval universities seem to have studied grammar, logic and rhetoric; arithmetic and geometry; astronomy, theology and music. Thus, their work, however imperfect and faulty, judged by modern lights, it may have been, brought them face to face with all the leading aspects of the many-sided mind of man. For these studies did really contain, at any rate in embryo, sometimes it may be in caricature, what we now call philosophy, mathematical and physical science and art. *And I doubt if the curriculum of any modern university shows so clear*

and generous a comprehension of what is meant by culture, as this old Trivium and Quadrivium does." (Italics mine.)

Of course Huxley says, " sometimes it may be in caricature." We must not forget, however, that first even Huxley hesitates to say that it is caricature, for he knows how easy it is to be mistaken in our estimation of the true significance of an old-time mode of thought, and then, too, he knew comparatively how little we were sure of the real thoughts and conclusions of these men of the olden time because of defective sympathy and even defective knowledge of their work. Our knowledge in this matter has greatly increased since his time. As a matter of fact, the more we know about these old masters and the mediæval universities the less are we likely to think of their work as lacking in seriousness in any sense. The quarter of a century that has elapsed since Huxley so cogently urged this at Aberdeen has brought many facts unknown to us before and has shown us what good work, even in the physical sciences, was accomplished in these old-time universities.

For instance, nothing is more common in the mouths of certain kinds of scholars than the expressions of wonder as to why men did not study nature more assiduously before our time. Here is a magnificent open book full of the most alluring lessons which any one may study for himself, and that somehow it is presumed men neglected

down to our time. We are the age of nature students, and preceding times are looked at askance for having neglected the opportunities that lay so invitingly open to them in this subject. It has always been a wonder to me how people dare to talk this way. Our old literatures are full of observations on nature. In my book on "The Popes and Science" I take Dante as a typical product of the universities of the thirteenth century, and show without any difficulty as it seems to me, that there is no poet of the modern time who can draw figures from nature which demand even a detailed knowledge of nature with so much confidence as Dante. He knows the most intimate details about the birds, about many animals, about the ways of flowers, about children, describes some experiments in science, has a wide knowledge of astronomy and in general is familiar with nature quite as much if not more than any modern writer not *ex professo* a naturalist. He describes the metamorphosis of insects, how the ants communicate with one another, knows the secrets of the bees and exhibits wide knowledge of the secrets of bird life.

The presumption that people did not study nature in the olden time is quite unjustified. They did not write long books about trivial subjects of nature-study. They did not conclude that because they were seeing something for the first time, that that was the first time in the world's history it had ever been seen. They were gentle,

kindly scholars who assumed that others had eyes and saw too, and as fortunately there was no printing press there was not that hurried rushing into print, with superficial observations and still more superficial conclusions, which has characterized so much of our recent literature of nature-study and that has been so well dubbed "nature faking." Of course we have had faking of the same kind in nearly everything else: we have history faking in our supposed historical romances, science faking in our pseudo-science, science-history faking in our ready presumption that the men of the olden time could not have had our interests, and, above all—may I now say it?—in our cheap conclusion that there must have been some reason for their lack of interest in science, and then the assumption without anything further, that it must have been because of the Church.

Just as soon as there is question of there having been any serious scientific study during the Middle Ages, in the sense of observations in physical science, investigation of the physical phenomena of nature and the drawing of conclusions from them and the evolving of laws, there are a large number of people who consider themselves very well informed, who will at once object that this must be quite absurd, since at this time Lord Chancellor Bacon had not as yet laid down the great foundations of the physical sciences in his discussion of inductive reasoning. I have already

ventured to suggest, in the address on "The First Modern University," how utterly ridiculous any such notion is. I have quoted Lord Macaulay and Huxley as ridiculing those who entertained such an idea. Here I may be permitted to recur to the subject by quotations from the same authorities. I have often found that anything I myself said in this matter was at once considered as quite incredible, since my feelings were entirely too favorable toward the Middle Ages and then my religious affiliations are somehow supposed to unfit me for scientific thinking. Fortunately Macaulay and Huxley have expressed themselves in this matter even more vigorously than I would be likely to, and so I may simply quote them.

As Lord Macaulay wrote in his well-known essay:

"The vulgar notion about Bacon we take to be this, that he invented a new method of arriving at truth, which method is called induction, and that he detected some fallacy in the syllogistic reasoning which had been in vogue before his time. This notion is as well founded as that of the people who, in the Middle Ages, imagined that Virgil was a great conjurer. Many who are far too well informed to talk such extravagant nonsense entertain what we think incorrect notions as to what Bacon really effected in this matter."

Still more apposite is what Professor Huxley has to say. Discoursing on the phenomena of

organic nature, after warning his auditors not to suppose that scientific investigation is "some kind of modern black art," he adds: "I say that you might easily gather this impression from the manner in which many persons speak of scientific inquiry, or talk about inductive and deductive philosophy, or the principles of the 'Baconian philosophy.' To hear people talk about the great Chancellor—and a very great man he certainly was—you would think that it was he who had invented science, and that there was no such thing as sound reasoning before the time of Queen Elizabeth.

"There are many men who, though knowing absolutely nothing of the subject with which they may be dealing, wish nevertheless to damage the author of some view with which they think fit to disagree. What they do is not to go and learn something about the subject; . . . but they abuse the originator of the view they question, in a general manner, and wind up by saying that, 'After all, you know, the principles and method of this author are totally opposed to the canons of the Baconian philosophy.' Then everybody applauds, as a matter of course, and agrees that it must be so."

Lord Bacon himself so little understood true science that he condemned Copernicanism because it failed to solve the problems of the universe, and condemned Dr. Gilbert, the great founder in Magnetism, whose work was the best exemplifica-

tion of inductive science of that time. Of course Bacon did not invent science nor its methods. He was only a publicist popularizing them. They had existed in the minds of all logical thinkers from the beginning. His great namesake, Friar Bacon, much better deserves to be thought a pioneer in modern physical science than the chancellor,—and he was a mediæval university man.

We are prone to think of the old-time universities as classical or literary schools with certain limited post-graduate features, more or less distantly smacking of science. The reason for this is easy to understand. It is because out of such classical and literary colleges our present universities, with their devotion to science, were developed or transformed during the last generation or two. It is to be utterly ignorant of mediæval education, however, to think that the classical and literary schools are types of university work in the Middle Ages. The original universities of the thirteenth and fourteenth centuries paid no attention to language at all except inasmuch as Latin, the universal language, was studied in order that there might be a common ground of understanding. Latin was not studied at all, however, from its literary side; to style as such the professors in the old mediæval universities and the writers of the books of the time paid no attention. Indeed it was because of this neglect of style in literature and of the niceties of classical Latin that the university men of recent centuries before our own,

so bitterly condemned the old, mediæval teachers and were so utterly unsympathetic with their teaching and methods. We, however, have come once more into a time when style means little, indeed, entirely too little, and when the matter is supposed to be everything, and we should have more sympathy with our older forefathers in education who were in the same boat. We have inherited traditions of misunderstanding in this matter, but we should know the reasons for them and then they will disappear.

As a matter of fact, exactly the same thing happened in our modern change of university interests during the latter half of the nineteenth century as happened in the latter half of the fifteenth century in Italy, and in the next century throughout Europe. With the fall of Constantinople the Greeks were sent packing by the Turks and they carried with them into Italy manuscripts of the old Greek authors, examples of old Greek art and the classic spirit of devotion to literature as such. A new educational movement termed the study of the humanities had been making some way in Italy during the preceding half-century before the fall of Constantinople, but now interest in it came with a rush. The clergymen, the nobility, even the women of the time became interested in the New Learning, as it was called. Private schools of various kinds were opened for the study of it, and everybody considered that it was the one thing that people who

wanted to keep up to date, smart people, for they have always been with us, should not fail to be familiar with. The humanities became the fashion, just as science became the fashion in the nineteenth century. Fashion has a wonderfully pervasive power and it runs in cycles in intellectual matters as well as in clothes.

The devotees of the New Learning demanded a place for it in the universities. University faculties perfectly confident, as university faculties always are, that what they had in the curriculum was quite good enough, and conservative enough to think that what had been good enough for their forefathers was surely good enough also for this generation, refused to admit the new studies. For a considerable period, therefore, the humanities had to be pursued in institutions apart from the universities. Indeed it was not until the Jesuits showed how valuable classical studies might be made for developmental purposes and true education that they were admitted into the universities.

Note the similarity with certain events in our own time in all this. Two generations ago the universities refused to admit science. They were training men in their undergraduate departments by means of classical literature. They argued exactly as did the old mediæval universities with regard to the new learning, that they had no place for science. Science had to be learned, then, in separate institutions for a time. The scientific

educational movement made its way, however, until finally it was admitted into the university curricula. Now we are in the midst of an educational period when the classics are losing in favor so rapidly that it seems as though it would not be long before they would be entirely replaced by the sciences, except, in so far as those are concerned who are looking for education in literature and the classic languages for special purposes.

It will be interesting, then, to trace the story of the old mediæval universities as far as the science in their curriculum was concerned, because it represents much more closely than we might have imagined, or than is ordinarily thought, the preceding phase of education to the classical period which we have seen go out of fashion to so great an extent in the last two generations. We shall readily find that at least as much time was devoted in the mediæval universities to the physical sciences as in our own, and that the culture sciences filled up the rest of the curriculum. Philosophy, which occupied so prominent a place in older university life, was not only a culture science, but physical science as well, as indeed the name natural philosophy, which remained almost down to our day, attests.

Physical science was not the sole object of these mediæval institutions of learning, but they were thoroughly scientific. The main object of the universities in the olden time was to secure such

discussion of the problems of man's relation to the universe, to his Creator, to his fellow-creatures and to the material world as would enable him to appreciate his rights and duties and to use his powers. Huxley declared that the trivium and quadrivium, the seven liberal arts studied in the mediæval universities, probably demonstrate a clearer and more generous comprehension of what is meant by culture than the curriculum of any modern university. Language was learned through grammar, the science of language. Reasoning was learned through logic, the science of reasoning; the art of expression through rhetoric, a combination of art and science with applications to practical life. Mathematics was studied with a zeal and a success that only those who know the history of mediæval mathematics can at all appreciate. Cantor, the German historian of mathematics, in hundreds of pages of a large volume, has told the story of the development of mathematics during the centuries before the Renaissance, that is from the thirteenth to the fifteenth, in a way that makes it very clear that the teaching at the universities in this subject was not dry and sterile, but eminently productive, successful in research, and with constant additions to knowledge such as live universities ought to make.

Then there was astronomy, metaphysics, theology, music and law and medicine. The science of law was developed and, above all, great col-

lections of laws made for purposes of scientific study. Of astronomy every one was expected to know much, of medicine we shall have considerable to say hereafter, but in the meantime it is well to recall that these mediæval centuries maintained a high standard of medical education and brought some wonderful developments in the sciences allied to medicine and above all in their applications to therapeutics. Surgery never reached so high a plane of achievement down to our own time, as during the period when it was studied so faithfully and developed so marvellously at the mediæval universities. It was inasmuch as a knowledge of physics was needed for the development of metaphysics that the mediæval schoolmen devoted themselves to the study of nature. They turned with as much ardor and devotion as did Herbert Spencer in the nineteenth century, to the accumulation of such information with regard to nature as would enable them to draw conclusions, establish general principles and lay firm foundations for reasonings with regard to the creature and the Creator. It is, above all, this phase of mediæval teaching work, of the schoolmen's ardent interest that is misunderstood, often ignored and only too frequently misrepresented in the modern time.

For instance, in the discussion of the status of matter in the universe the scholastics and notably Thomas Aquinas had come to the conclusion that matter was absolutely indestructible. He

LIBRARY OF THE UNIVERSITY OF CALIFORNIA

even went so far as to say that man could not destroy it, and God would not annihilate it. *Nihil omnino in nihilum redigetur*—nothing at all will ever be reduced to nothingness, was his dictum as the conclusion of a course of lectures on this subject. He saw the changes in matter all round him that were supposed to be destructive, the burnings, the vaporizations, the solutions, the putrefactions and all the rest, but he knew that these only brought changes in matter and not destruction of the underlying substance. For him, as for all the scholastic philosophers, matter was composed of two principles, as they were called. One of these was prime matter and the other form. To prime matter, one of these, matter or substance owed all its negative qualities, inertia and the like. To form, the dynamic element or principle, it owed all its individuating qualities. Prime matter was the same in all things. Form was the energy or bundle of energies, the dynamic principle, as we have said, which entering into prime matter, made the different kinds of matter that we speak of.

It is extremely interesting to compare this old scholastic teaching with the modern ideas of the composition of matter and especially the notions which have come to us from researches in physical chemistry in recent years. Our scientists no longer believe that we have some eighty different elements, essentially different kinds of matter, that cannot by any chance or process be changed one

into another. We have seen one form of elementary matter changing into another, helium emanations becoming radium, have heard of Professor Ramsay's transmutation of various elements, and have about come to the conclusion that in the radio-active substances we have a wonderful transmuting power. A prominent American professor of chemistry declared not long since that he would like to treat a large quantity of lead ore in order to extract from it all the silver which so constantly occurs in connection with it in the natural state, and then having put the lead ore aside for a score of years, would like to examine it again, confident that he would find traces of silver in it once more, which had developed as a consequence of the radio-activity present in the substance and which is constantly changing lead into silver in small quantities. Newton's declaration, when he saw crystals of gold in connection with copper, that gold had been developed from the copper, seemed very foolish a century ago, but no one would consider it so at the present moment.

We are prone to think that these old mediæval philosophers accepting to some extent at least the philosopher's stone with its supposed capacity for changing baser metals into precious, and with their acceptance of the transmutation of substances, cannot have had any real scientific bent of mind. We are coming to the realization, however, that in many ways by pure reasoning, in

conjunction with such observation as they had at hand, they anticipated our most recent conclusions in very marvellous ways. We know now that radium, or at least radio-active substances, represent the philosopher's stone of the olden time. We are not surprised at the transmutation of metals and of substances, on the contrary, we are looking for it.

I remember once stating the old theory of matter and form to a distinguished professor in chemistry in this country, and he was struck by the similarity of it to what are the present accepted ideas of the composition of matter. He asked why this teaching was not more generally known. I had to tell him that in every Catholic school of philosophy, it was taught as a basic doctrine, and that far from being concealed it was the very touchstone of Catholic philosophic teaching, and had often been the subject of deprecation and contemptuous remarks on the part of those who thought that it represented somewhat foolish old-fashioned teaching handed down to us from the backwardness and abysm of time.

We have demonstrated the indestructibility of matter in modern times by experimental methods. The mediæval schoolmen reached similar conclusions, however, by strict reasoning from the premises of observation that they had in the olden times. We may be apt to think that they knew very little about nature and the details of physical science, but that will be only because we do not

know their great books. Albertus Magnus is a typical example of a renowned teacher of the thirteenth century who was, however, at the same time a highly respected member of his order, holding important official positions in it and thoroughly honored and respected by his ecclesiastical superiors so that he was made a bishop, yet writing volumes of observation with regard to nearly every phase of physical science. A list of his books reads like a section of a catalogue of a library of physical science. I have told the story of his career in the second series of "Catholic Churchmen in Science," but the names of his volumes are sufficient to show what sort of work he was doing. He has volumes on chemistry, botany, on physics, on cosmography, on animal locomotion, on respiration, on generation and corruption, on age and death and life, on phases of psychology, the soul, sense and sensation, memory, sleep, the intellect and many another subject. Those who think that there was no attention paid to science in the Middle Ages must know nothing at all of Albertus Magnus' work.

Above all, those who talk thus are entirely ignorant of all that Roger Bacon did. Roger Bacon himself was a student of the University of Paris. He was a professor there. He corresponded with the scientists of Europe quite as frequently or at least as significantly as professors of the modern time do with each other. Students submitted their discoveries to him. We

have Peregrinus' letter to him with regard to magnetism and electricity and know of others. We have his own books, in which he treats not only the scientific problems, but inventions and applied science of all kinds. At the present time his interest in aëronautics has a special appeal to us. He was sure that men would sometime make a successful airship. He even thought that he could make one himself, but his experiments proved unsuccessful. His theory of it was very interesting. In his work "De Secretis Artis et Naturæ Operibus" he writes that a machine could be constructed in which a man sitting in the centre might move wings by means of a crank and thus, quite after the fashion of birds, fly through the air. It was he who wrote that the time would come when carriages would move along the roads without men or horses to pull them. At the moment he was experimenting with gunpowder. He realized, therefore, that sometime men would harness explosives and use them for motor purposes. That is, of course, just what we are doing with gasolene.

He suggested that boats would run over the water without oars and without sails. He was anticipating our motor boat. He taught that light moves with a definite rate of velocity, though that fact was not demonstrated for several centuries after his time. He worked out most of the theory of lenses as we have it at the present time. He was sure that experiment and observa-

tion constituted the only way by which knowledge of nature could be obtained. In this he was but following his great teacher Albertus Magnus, who insisted that in natural philosophy experiment alone brought sure knowledge; "*Experimentum solum certificat in talibus*," are his own words. Roger Bacon's devotion to mathematics shows how thoroughly scientific was the trend of his mind. Without mathematics he was sure that one could not reach scientific knowledge, or that what one did get was without certainty. Some of his expressions in this matter are strikingly modern. It is no wonder that his writings and teachings were so great a surprise to his generation that the Pope ordered him to write out his knowledge in books. Without this order we would not have had Roger Bacon's great works, for his vow of poverty voluntarily taken forbade him to be possessed of sufficient money to enable him to purchase writing materials, which were then very expensive.

Indeed the mathematics of the mediæval universities is the best proof of the seriousness of their devotion to science and, may it also be said, of their success. Cantor, in his "History of Mathematics," and he is the great authority in the matter, devotes nearly 100 pages of his second volume to the mathematicians of the thirteenth century alone, two of whom, Leonard of Pisa and Jordanus Nemorarius, did so much in arithmetic, in the theory of numbers, and in geometry,

as to work a revolution in mathematics. They had great disciples like John of Holywood (probably a town near Dublin), Johannes Campanus and others. No wonder that at the end of the century Roger Bacon said, "For without mathematics nothing worth knowing in philosophy can be obtained," and again, "for he who knows not mathematics cannot know any other science; what is more, he cannot discover his own ignorance or find its proper remedy." The fourteenth and fifteenth centuries saw even more important work done. Cantor has half a dozen men in the fifteenth century to whom he devotes more than twenty-five pages each. How the place of this in mediæval teaching can have escaped the notice of those who insist so much on the neglect of science during the Middle Ages, is hard to understand. This alone would convict them of ignorance of what they are talking about.

The educational genius of the great university century, the thirteenth, the man who influenced his contemporaries and succeeding generations more than any other, was Thomas Aquinas, to whom the Church, for his knowledge and goodness, gave the title of saint. If any further proof that these centuries were interested in science were needed, or that the universities in which he was the leading light as scholar and professor in the thirteenth century, and as the great master to whom all looked reverentially after, were developing scientific studies, it would be found in

his works. Philosophy is developed scientifically in his "Contra Gentes" and theology, scientifically in his great "Summa." It is the very austerity of the scientific qualities of these books that have made them forbidding for many modern readers, who, therefore, have failed to understand the scientific spirit of the time. St. Thomas Aquinas, however, was, as I suggested at the beginning of this, deeply interested in every form of information with regard to what we now call physical science. He evidently drank in with avidity all that had been observed with regard to living creatures and, when we come to analyze his works with care and read his books with the devotion of his own students, we find many anticipations of what is most modern in our science.

The indestructibility of matter, matter and form, that is the doctrine of the unity of the basis of matter, the conservation of energy in the sense that the forms of matter change but do not disappear, all these were commonplaces in his thought and teaching. I have recently had occasion to point out how close he came to that thought in modern biology which is probably considered to be one of our most modern contributions to the theory of evolution. It is expressed by the formula of Herbert Spencer, "Ontogeny recapitulates phylogeny." According to this the completed human being repeats in the course of its development the history of the race, that is to say, the varying phases of fœtal development

in the human embryo, from the single cell in which it originates up to the perfect being as it is born into the world, retrace the history by which from the single-cell being man has gradually developed. The whole theory of evolution is supposed by many people to be modern, but of course it is not. This particular phase of it, however, is thought surely to be modern. It is sometimes spoken of as the fundamental law of biogeny. In recent years serious doubts have been thrown on it, but with that we have nothing to do here.

It is very curious to find, however, that St. Thomas, in his teaching with regard to the origin and development of the human being, says, almost exactly, what the most ardent supporters of this so-called fundamental biogenetic law proclaimed in recent years. He says that " the higher a form is in the scale of being and the farther it is removed from mere material form, the more intermediate forms must be passed through before the finally perfect form is reached. Therefore, in the generation of animal and man—these having the most perfect forms—there occur many intermediate forms in generations and consequently destruction, because the generation of one being is the destruction of another." St. Thomas does not hesitate to draw his conclusions from this doctrine without hesitation. He proclaims that the human material is first animated by a vegetative soul or principle of life, and then by an animal soul and only ultimately, when the matter has

been properly prepared for it, by a rational soul. He said:

"The vegetative soul, therefore, which is first in the embryo, while it lives the life of a plant, is destroyed, and there succeeds a more perfect soul, which is at once nutrient and sentient, and for that time the embryo lives the life of an animal: upon the destruction of this there succeeds the rational soul, infused from without."

His discussion of the position of the Church and of faith to science is extremely interesting, because here once more he faces a modern problem. Aquinas was very sensitive with regard to the imposition upon Christians of things which supposedly they had to believe on the score of faith, though they were really not of faith at all. Some of his expressions in this matter are very strong and he was especially fond of quoting St. Augustine, who was very emphatic on this point. One of these typical passages deserves to find a place here because, while the word philosophy is used, it is evidently science in our modern sense of the word that is intended. Augustine talks of what the philosophers have said of the heavens or the stars and the motion of the sun and moon, meaning of course the astronomers, who were in the old days classed as natural philosophers. This passage, then, which contains the opinions of the two greatest teachers of the Church in the West may well serve as a guide for those who are interested in science, and a warning for those who would

obtrude faith too far into scientific questions, and thus limit investigation and hamper that freedom of intellect which is so important for the development of science. St. Thomas said in his introduction to the reply to Master John of Vercelli:

"I have endeavored to reply but with this protest at the outset, that many of these articles do not pertain to the teachings of faith, but rather to the dogmas of the philosophers. But it works a great injury either to assert or deny as belonging to sacred doctrine such things as do not bear upon the doctrine of piety. For Augustine says, 'When I hear certain Christians ignorant of those things (namely, what philosophers have said of the heavens, or the stars, or the motion of the sun and moon) or misunderstanding them, I look with patience upon such men: nor do I see any reason to hinder them, when of thee, Lord Creator of all things, they do not believe unworthy things, if perhaps they be ignorant of the structure, and condition of corporal creatures. But they are a hindrance if they think these things belong to the very doctrine of piety; and more, pertinaciously, dare to affirm that of which they are ignorant.' But that they may be the cause of injury Augustine shows. 'It is very disgraceful,' he says, 'and pernicious and especially to be avoided, that a Christian speaking of these things as though according to Christian teaching should so rave that any infidel may hear; so that, as it is said, seeing him altogether in the wrong, he may

scarcely contain his mirth. And it is not so hurtful that one man should be seen to err, as that our writers are believed by those who are without [the Church] to have such opinions, and to the ruin of those whose salvation is our care they are scorned and contemned as unlearned.' Whence it seems safer to me that those things which philosophers have commonly held, and are not repugnant to our faith, should neither be asserted as dogmas of faith, although at times they may be introduced under the names of the philosophers, nor so denied as contrary to the faith, as to give occasion to the wise of this world of contemning the teaching of the faith."

Is it any wonder that Professor Saintsbury of the University of Edinburgh, whose training in the old Scotch universities has given him a breadth of sympathy not common in our time, and whose wide knowledge of the literature of that period as well as its philosophy and education, and whose training in the discussion of the criticism of all time in his "History of Criticism" has made his opinion of special value, should have sympathetically turned to these old teachers and deprecated a little bitterly the modern attitude towards them? He said:

"Yet there has always in generous souls who have some tincture of philosophy, subsisted a curious kind of sympathy and yearning over the work of these generations of mainly disinterested scholars, who, whatever they were, were thor-

ough, and whatever they could not do, could think. And there have even, in these latter days, been some graceless ones who have asked whether the science of the nineteenth century, after an equal interval, will be of any more positive value—whether it will not have even less comparative interest than that which appertains to the scholasticism of the thirteenth."

I have always considered, however, that the easiest way to show the modern student of science how supremely scientific in his temper was St. Thomas, is to quote for him the passage from that great teacher with regard to the Resurrection. In every way, that is typically modern. St. Thomas faces the question that after death men's bodies decay, the material of them is taken up and used in many other living beings, so that how can we dare to believe that we shall rise again on the last day with the same bodies that we now have? St. Thomas discusses this knotty problem straightforwardly and solves it more satisfactorily, even for all the knowledge that we have of it now, than has ever been done.

"What does not bar numerical unity in a man while he lives on uninterruptedly clearly can be no bar to the identity of the arisen man with the man that was. In a man's body while he lives there are not only the same parts in respect of matter, but also in respect of species. In respect of matter there is a flux and reflux of parts. Still that fact does not bar the man's numerical unity

from the beginning to the end of his life. The form and species of the several parts continue throughout life, but the matter of the parts is dissolved by the natural heat, and new matter accrues through nourishment. Yet the man is not numerically different by the difference of his component parts at different ages, although it is true that the material composition of the man at one stage of his life is not his material composition at another. Addition is made from without to the stature of a boy without prejudice to his identity, for the boy and the adult are numerically the same man."

The most important feature of the scientific teachings of the mediæval universities has been left till the last because it is the clinching confirmation of a claim that these were essentially scientific universities. It is to be found in the position of the medical schools and the state of medical teaching during the Middle Ages. So curiously has the history of education been written, and, above all, of medical education, that to most people this would seem to be surely the department of education which would prove just the opposite. We have heard so much about Church opposition to anatomy and Church opposition to surgery, of its repression of the development of medical science and even medical art, because the Church wanted to make people believe in the value of masses, relics and prayers—and pay for them—that most people are quite sure that there

was no medical education of any significance in the Middle Ages. Nothing shows more clearly how viciously the history of education has been written than the existence of such false impressions. Not only are they utterly unfounded, but they are based on supreme ignorance of one of the greatest periods in the history of medicine that we have in all the world's history. Not only were the schools excellent and the teaching progressive, but there was a fine development of medical science and, above all, of surgery. Surgery is supposed to be particularly the department of medicine that did not develop. We have learned better in recent years, and now we know that there was no greater period in the history of surgery than that from 1200 to 1400 when, alas! following so-called history, we used to think there was no surgery.

The first question that any one who knows anything about the subject asks with regard to the progress in medicine of a particular time or country is, what was the standard of its medical education? What was the standard of admission to the medical schools, how many years of medical studies were required? To this question the Middle Ages have a wonderful answer that has not been realized until recent years. We now have Frederick II's famous law for the regulation of the practice of medicine and the maintaining of standards in medical schools. This law was promulgated in the Two Sicilies, the southern part of

Italy and Sicily proper. According to it no one was allowed to practise medicine who had not studied for four years in a recognized university and then practised for one year with a physician before receiving his license to practise by himself. If he wanted to practise surgery he had to spend an additional special year in the study of anatomy. The university medical schools were graduate schools and did not admit a student unless he had completed the undergraduate course.

Of course it may be thought that this was due entirely to the great Emperor Frederick, who was far ahead of his time and who, therefore, anticipated the progress of medical teaching by many centuries. We have, however, many other documents which illustrate the state of medical education at this time. The charters of the medical schools were granted by the Popes and were very explicit in what they required of the new faculties in order that standards might be maintained. Pope John XXII, for instance, at the beginning of the fourteenth century, issued charters for medical schools at Perugia and Cahors. He required that there should be four years of medical study and three years of preliminary work. He went into details to secure the maintenance of standards. The original faculties of these schools would all have to be doctors in medicine from either Paris or Bologna, and it must be their duty to establish in the new schools the standards of their

Almæ Matres. Examinations were to be conducted under oath, men were not to be granted degrees unless they deserved them, the votes of professors rejecting candidates or graduating them were to be under oath-bound secrecy, so as to have them absolutely free from personal influence, and every precaution was taken to secure the highest possible standards.

It was as a consequence of their direct attachment to these old mediæval medical schools that the medical schools founded here in America in the sixteenth century at once began with high standards. Three years of preliminary work was required and four years of medicine. In the United States no preliminary requirements were demanded; and for a full century only two years of medical study, which really consisted of but two terms of four months each, was the requirement. The old mediæval medical schools were originally attached to the universities, and it is a well-known rule in the history of education that whenever the medical schools are independent then standards are sure to be low. Whenever the university controls the medical school and it is a real graduate department, then standards of admission and of graduation are properly maintained. It is surprising to think that the old mediæval universities should be able to give us lessons in this matter and should put us to shame for our slipshod nineteenth-century medical education in the United States, but this is a simple fact. Contrast

the South American countries where the mediæval traditions with which they were founded constrained them to give four, five and even six years to medicine before granting a degree. Go a step further and see how devoted to science were the Universities of Lima (Peru) and Mexico, centuries before we did any serious scientific work in the United States, and all because they were direct descendants of the old mediæval universities.

The feeling of certain modern educators would be that it did not matter how much time these mediæval universities gave to medicine since, after all, they had nothing of any value to teach in medicine. Even educated people have been led to believe that there was nothing in medicine and, above all, in the surgery of those times to be of any value. Probably no opinion is more foolishly ignorant or more ridiculously absurd than this, though it is a commonplace among people who are sure they know something about history, and, above all, among those who consider themselves authorities in the history of education, and of the development of science. In surgery a magnificent development was made at this time of which I shall have something to say later. In medicine there was much less anticipation of our modern progress, but even here there was much that demands our respect. One of the university men, Simon of Genoa, worked out the dosage of opium and indicated its uses. Anodyne drugs were em-

ployed much more generally and successfully than we are apt to think; various methods of anæsthesia, one of them by inhalation, of which I shall say more when talking of surgery, were invented and a large number of drugs and simples were experimented with. Down at Montpellier Bernard Gordon suggested red light for smallpox.

This is not much of a record, perhaps, but we must not forget what Professor Richet, the Director of the Physiological Laboratory of the University of Paris, said not long since in an article on "Physicians and Medicine" in *La Revue de Deux Mondes*. It is startling but chasteningly true. "The therapeutics of any generation has always been quite absurd to the second succeeding generation." Indeed it is one of the almost disheartening things in the history of medicine to see how treatments come in, are widely accepted and hailed as great advances in therapeutics and then gradually disappear. They bled a great deal and they purged not a little, in accordance with the teaching in the medical schools of the universities of the thirteenth and fourteenth centuries, but then they bled a great deal and purged a great deal more, according to the teaching of the medical schools of the beginning of the nineteenth century. There have been many periods in the interval when purging and bleeding were, and very properly, not nearly so popular.

It was in preventive medicine particularly that

these progressive medical men of the early university days secured their triumphs. They made separate hospitals for the lepers all over Europe, and by segregation succeeded in wiping out that disease, though it was as widely spread as tuberculosis in our day and presented just as serious a problem. Indeed the most encouraging incentive for our present tuberculosis campaign is drawn by many authorities from the experience with leprosy, which was eventually obliterated as an endemic popular disease, by strict segregation methods. These same generations created special hospitals for erysipelas and thus prevented the spread of this disease in the ordinary hospitals, where it used to be so serious a factor for morbidity if not for mortality. Men forgot this later and the disease became a serious problem once more in all the hospitals of even a generation ago. The hospital organization worked out by these university men is the finest jewel in the crown of their accomplishment as applied scientists. Pope Innocent III, himself a University of Paris man, founded the Santo Spirito Hospital in Rome, summoning for that purpose the best authority on hospitals in Europe, Guy of Montpellier, and then required the bishops of the world to erect similar hospitals in their dioceses. This was done, and it is Virchow, whose sympathies were anything but favorable to the Popes, who has been most loud in his praise of the wonderful hospital organization of these centuries. Every town in

Europe of 5,000 inhabitants or more had a hospital, and there were hospitals in many of the smaller towns.

It would be easy to think that these hospitals were rudely built, were badly ventilated, were ill-arranged and, above all, were likely to be houses for the perpetuation of disease rather than for the regaining of health. We are prone to think that we are the first generation to solve the problem of hospital construction. We know what poorly-constructed, badly-planned institutions were the hospitals of three generations ago. What, then, must have been the hospital buildings of centuries ago? This argument has no place in history; the worst hospitals in the world and in history were erected at the end of the eighteenth and the beginning of the nineteenth century. Some of the best hospitals ever constructed date from the thirteenth, fourteenth and fifteenth centuries. This was a time when great architects were successfully solving the construction problems for cathedrals, municipal buildings, colleges and the like, and they solved them quite as successfully for hospitals. Some of these hospitals were models in their way. One of them, built toward the end of the thirteenth century, by the sister of St. Louis, Marguerite of Bourgogne, with its large windows high in the walls, in single-story buildings, with arrangements for the segregation of patients, with the kitchens in a separate building, with beautiful

frescoes on the walls so that patients' minds might be occupied and not left to their own often disturbing devices as with our bare wall, with a stream of running water divided so as to pass on both sides of the hospital, is a model of construction for all time.

It was in surgery rather than medicine, however, that these great mediæval university medical schools left their impress upon the history of medicine. During the thirteenth, fourteenth and fifteenth centuries we have a series of wonderful teachers of surgery, whose achievements we know not by tradition nor by fragments of their writings, but by the text-books which they wrote and which constituted the teaching for generations and sometimes for centuries after their time. Gurlt, the great German historian of surgery, devotes some 300 pages of the first volume of his "History of Surgery" to the surgical accomplishments of the Middle Ages. He even protests that space compels him to abbreviate the story of what these old-time masters of surgery did to lay the foundation of modern surgical practices. It is a commonplace in the American writing of history that there was no surgery at this time. President White says that, "for over a thousand years surgery was considered dishonorable until the German Emperor Wenceslas, in 1405, ordered that it should be held in honor again." The two centuries immediately preceding this date represent the great-

est period in the history of surgery down to our own time, and because of its originality probably greater in real achievement than even our vaunted age.

It is sometimes the custom to say that this surgery was derived from the Arabs. This is supposed to rob the mediæval universities of any prestige that may come to them for this marvellous progress. Gurlt, however, in his "History of Surgery," in his sketch of Roger (Ruggiero), who was the first of the great surgeons of the thirteenth century, who taught at the Italian universities, says: "Though Arabian writings on surgery had been brought over to Italy by Constantine Africanus 100 years before Roger's time, these exercised no influence over Italian surgery in the next century, and there is not a trace of the influence of the Arabs to be found in Roger's work." When Gurlt says this it is because he has deliberately studied the question, and we can be absolutely sure, therefore, that whatever we find in surgery at this time comes to us from these great mediæval universities themselves, and is not imported from abroad.

After Roger, who was at Bologna for a time after having been in Paris, and who then became a Papal physician, there are a series of great names that deserve to be mentioned. Four names are connected together by association as master and pupil for what may be termed four generations of surgical progress. From the birth

of the first to the death of the last represents about 100 years. That 100 years is a gloriously fruitful century in the history of surgery. The first of the group is William of Salicet, of whom Professor Clifford Allbutt, the Regius Professor of Physic at the University of Cambridge, in his address on the "Historical Relations of Medicine and Surgery to the End of the Sixteenth Century," delivered by special invitation at the Congress of Arts and Sciences at the World's Fair in St. Louis in 1904, has the highest praise. Allbutt says: "Like Lanfranc and the other great surgeons of the Italian tradition, and unlike Franco and Paré, William had the advantage of the liberal university education of Italy; but like Paré and Wurtz, he had a large practical experience in hospitals and on the battlefield and fully recognized that surgery cannot be learned from books only." Allbutt praises him and rightly for his careful notes of cases and then tells us something of his accomplishments in surgery. He says: "William discovered that dropsy may be due to a *durities renum* six centuries before Bright; he substituted the knife for the Arabist abuse of the cautery; *he investigated the causes of the failure of healing by first intention* (Italics ours), he described the danger of wounds of the neck; he sutured divided nerves; he forwarded the diagnosis of suppurative diseases of the hip; and he referred chancre and phagedæna to their proper causes."

His pupil Lanfranc equalled his master in devotion to practical surgery and surpassed him in his development of the great science of medicine. Pagel, the well-known German historian of medicine, says that, in his text-book Lanfranc has excellent chapters on the affections of the eyes, the ears and mouth, the nose, even the teeth, and treats of hernia in a very practical common-sense way. He warns against the radical operation and says, in words that come home to us with strange familiarity at the present time, that many surgeons decide on operations too easily, not for the sake of the patient but for the sake of the money that is in them. Lanfranc's discussion of cystotomy, Pagel characterizes as prudent but rational, for he considers that the operations should not be feared too much but not delayed too long. In patients suffering from the inconvenience which comes from large quantities of fluid in the abdomen he advises *paracentesis abdominis,* but warns against putting the patient in danger from such an operation without due consideration. Pagel says that Lanfranc must be considered as one of the greatest surgeons of the Middle Ages and the real establisher of the prestige of the French school of surgery which maintained its prominence down to the nineteenth century

Lanfranc had been invited to Paris to take the chair of surgery, because the authorities of the university wanted to add prestige to the medical school, which was not as well known as the school

of philosophy. The fame of William of Salicet had spread throughout academic Europe, and so Lanfranc was offered the chair at the University of Paris in order to carry his master's message there. The next in the succession of great teachers at Paris was Mondeville, who found less to do in an original way than his master Lanfranc and his protomaster William, but who accomplished much for surgery. All that he did was thrown into the shade by what was accomplished for succeeding generations by the next in the series, Guy de Chauliac, who studied for a time in Paris under Mondeville, though his early medical education was obtained at Montpellier, but had also had the advantage of spending a year in Italy at the various medical schools which were famous at that time. These two incidents, Lanfranc's invitation to Paris to be a teacher there from Italy more than a thousand miles away, and Guy de Chauliac's studies in all the important universities of Europe of the time before he took up his own work, illustrate better than any words of ours can the ardent enthusiasm for study, the thoroughgoing anticipation of our most modern methods in education. Mondeville, like Chauliac, had made very nearly the same round of the universities. It is a custom, not a chance incident, that we have to deal with here.

Guy de Chauliac has been given the name of the father of modern surgery. Any one who wants to see why should read the text-book on surgery that

Chauliac wrote and which for two centuries after his time (he died about the middle of the fourteenth century) continued to be the most used text-book of surgery in the medical schools of Europe. Chauliac, for instance, describes the treatment of conditions within all three of the important cavities of the body, the skull, the thorax and the abdomen. Pagel has three closely-printed pages in small type of titles alone of subjects in surgery which Chauliac treated with distinction. His description of instruments and methods of operation is especially full and suggestive. He describes the passage of a catheter, for instance, with the accuracy and complete technique of a man who knew the difficulties of it in complicated cases from practical experience. He even recognizes the dangers for the patient from the presence of anatomical anomalies of various kinds and describes certain of the more important of them. He has very exact indications for trephining. For empyema he advises opening of the chest and indicates where and how. He says very frankly that in wounds of the abdomen the patient will die if the intestines have been perforated and left untreated, and he describes a method of suturing wounds of the intestines in order to save the patient's life.

His treatment of bone surgery and of fractures and dislocations is especially interesting and shows how far these very practical men had reached conclusions resembling those of our time.

It was in hernia particularly that Chauliac's surgical genius manifested itself. He operated for hernia and its radical cure, placing the patient in an exaggerated Trendelenberg position, head down, feet fastened to a slanting board. For such work anatomy had to be known very well, and Chauliac had made special studies at Bologna under Bertruccio, the successor of Mondino. Chauliac once declared that the surgeon ignorant of anatomy carves the human body as a blind man would carve wood. Of ulcers of all kinds Chauliac writes from a knowledge evidently derived from experience. Of ulcers due to cancer he has much to say. He considers them hopeless unless they can be excised at a very early stage and the incision followed by caustics. For carcinomatous ulcers there is not much that we can do beyond this, even in our day. It is no wonder that the great historians of medicine have been unanimous in praise of this wonderful scientific genius. For my lecture on "Old-Time Medical Education," before the Johns Hopkins Historical Club, last year, I quoted some of those opinions. Portal, for instance, says of him, "It may be averred that Guy de Chauliac said nearly everything that modern surgeons say and that his work is of infinite price, but unfortunately too little pondered." Malgaigne declares Chauliac's "Chirurgia Magna," "A masterpiece of learned and luminous writing." Pagel says, "Chauliac represents the summit of attainment in mediæval

surgery, and he laid the foundation of that primacy in surgery which the French maintained down to the nineteenth century." Professor Clifford Allbutt says of Chauliac's treatise, "This great work I have studied carefully and not without prejudice; yet I cannot wonder that Fallopius compared the author with Hippocrates or that John Freind calls him the prince of surgeons. The book is rich, aphoristic, orderly and precise." In a word it has all the qualities that are usually said to be lacking in the work of mediæval scientists, and it is a standing reproach to those who ignorantly have made so little of the work of these wonderful men of the olden time, who anticipated so many of the features of our modern medicine and surgery that we are prone to think of as representing climaxes in human progress, indications of a wonderful human evolution.

Two other names of great professors of surgery deserve to be mentioned because they make it very clear that this wonderful development of surgery was not confined to France and Italy, but made itself felt all over Europe. One of these is John Ypermann, a surgeon of the early fourteenth century, of whom almost nothing was known until about twenty-five years ago, when the Belgian historian, Broeck, brought to light his works and gathered some details of his life. He was a pupil of Lanfranc, and at the end of the thirteenth century studied at Paris on a scholarship voted by his native town of Ypres,

which provided maintenance and tuition fees for him at the great French university expressly in order that he might become expert in surgery. We are likely to think of Ypres as an unimportant town, but it was one of the great industrial centres of Europe and one of the most populous, busy towns of Flanders in the Middle Ages, noted for its manufacture of linens and fine laces. The famous Cloth Hall, erected in the thirteenth century, one of the most beautiful architectural monuments in Europe, and one of the finest buildings of its kind in the world, was the result of the same spirit that sent Ypermann to Paris.

After his return Ypermann settled down in his native town and obtained great renown not only at home, so that in that part of the country an expert surgeon is still spoken of as an Ypermann, but he became famous throughout all the Teutonic countries. He is the author of two books in Flemish. One of these is on medicine. Pagel calls it an unimportant compilation. The terms that occur in it, however, are enough to show us how much more than we are likely to think, these old masters in medicine discussed problems that are still puzzling us. He treats of dropsy, rheumatism, under which occur the terms coryza and catarrh, icterus, phthisis (he calls the tuberculous tysiken), apoplexy, epilepsy, frenzy, lethargy, fallen palate, cough, shortness of breath, lung abscess, hemorrhage, blood-spitting, liver abscess, hardening of the spleen, affections of the kidney,

bloody urine, diabetes, incontinence of urine, dysuria, strangury, gonorrhea and involuntary seminal emissions—all these terms are quoted directly from Pagel.

His work in medicine, however, is as nothing compared to his writings on surgery. A special feature of his book is the presence of seventy illustrations of instruments of the most various kinds, together with a plate showing the anatomical features of the stitching of a wound in the head. Even Pagel's brief account of its contents will be a source of never-ending surprise for those who think that surgery has developed entirely in our time. Even in this work on surgery, however, there are many things that we now treat under medicine. As this gives us an opportunity to show how much more of medicine was known at this time than is usually thought, I venture to quote some of Pagel's brief résumé of the contents of a single chapter. This is a chapter devoted to intoxications, which includes the effect of cantharides as well as alcohol, and treats of the bites of snakes, scorpions and of the fatal effects of wounds due to the bite of mad dogs.

The other great surgeon and surgical writer of the time, for there must have been many distinguished surgeons and only a few writers, if we can trust to common experience in that matter, was John Ardern, an English surgeon. He was educated in Montpellier, practised for a time in France, then settled for some years in the

small town of Newark in Nottinghamshire, and then for nearly thirty years in London. His "Practice of Surgery," as yet existing only in manuscript, is another one of these wonderful contributions to the applied sciences of anatomy and medicine at a time when such applications are often supposed to have been absent. He was an expert operator and had a wide reputation for his success in the treatment of diseases of the rectum. He was the inventor of a new clyster apparatus. Daremberg, the medical historian, who saw a copy of Ardern's manuscript in St. John's College, Oxford, says that it contained numerous illustrations of instruments and operations. We fortunately possess an excellent manuscript copy in the Surgeon General's Library at Washington, and sometime it is hoped this will be edited and published.

The most interesting feature of the work of all of these men is their dependence on personal observation and not on authority. Guy de Chauliac's position in this matter can be very well appreciated from his criticism of John of Gaddesden's book in which he bewails the blind following of those who had gone before. His bitterest reproach for many of his predecessors was that, "They followed one another like cranes, whether for fear or love he would not say." Pagel praises Ypermann for the well-marked striving which he has noted in him to free himself from the bondage of authority, and because most of his therapeutic

descriptions rest upon his own experience. William of Salicet, at the beginning of this great period of surgery, had insisted that notes of cases were the most valuable sources of wisdom in medicine and surgery. The last of them, Ardern, gave statistics of his cases and was quite as proud as any modern surgeon of the large number that he had operated on. He gives these carefully and accurately.

I have dwelt on the medical side of these universities mainly, of course, because this is more familiar to me as a historian of medicine than their work in other scientific departments, but also to a great extent because the medical schools gathered unto themselves nearly all the scientific knowledge of the time. Botany, mineralogy, climatology, meteorology were all studied for the sake of what could be learned from them for the benefit of medicine. Even astronomy which was then the old astrology, was cultivated seriously, because of the supposed effect of the stars on human constitutions. For this we surely cannot blame these mediæval students of science since four centuries later Galileo and even Kepler were still making horoscopes for their patrons and laying down laws from astronomy that were supposed to be applicable to medicine. Even Copernicus studied astronomy and medicine side by side and this combination of studies was not at all infrequent.

The medical schools, then, are the real index of

the serious interest of the mediæval universities in science. Our scientific departments in modern universities have developed other interests, because of various applications that these have to life and its concerns. Always in scientific universities applied science is sure to encroach upon the domain of pure science, and no one knows that better than we do, for we have been bewailing the presence of machine shops and boiler factories on the university grounds. The old universities did not teach applied mechanics or engineering, but that does not mean that these subjects were not taught. There were special technical schools conducted by the gilds by means of apprenticeship and the journeyman training, which enabled them to teach those who cared to have it all the knowledge necessary for construction work of various kinds. The wonderful architectural engineering exhibited in the cathedrals, university buildings, town halls and castles of this time, and the magnificent bridges, some of which are still in existence, show us that the technical subjects were by no means neglected.* Our mediæval forefathers in education had the wisdom not to let the technical subjects interfere with pure science too much, as they inevitably do whenever the two are brought too closely together. Culture is always overshadowed by the practical, but not to the ultimate benefit of the race.

The proof for us here in America, close at

* See Address on "Ideal Education of the Masses."

hand, that these universities of the Middle Ages were thoroughly scientific in spirit and not only capable of, but actually active and successful in scientific investigation, is to be found in our earliest American universities. We are prone to think, because of the curiously defective way in which our histories of education have been written, that the only things worth while talking about in the origins of education here in America are to be found in English America. Recent investigations have shown how utterly deceived we were by foolish self-conceit in this matter. Long before the English-American universities were founded, and still longer before they began to do any serious work in education, there were important universities having literally thousands of students in attendance in the Spanish-American countries. The University of Mexico and the University of Lima in Peru were both founded about the middle of the sixteenth century. Harvard came nearly a century later, Yale a full century and a half, Princeton more than two centuries. The contrast between our English-American institutions of learning, however, and their Spanish-American rivals in accomplishment and numbers in attendance is still more striking than the mere dates of foundation.

Of course there were chairs of many sciences, strange as that may seem to us with our ridiculous traditions with regard to the history of education. These Spanish-American universities were

the direct descendants of the old mediæval universities. They were in close relationship with Salamanca, Valladolid and Alcala. They were the progeny of scientific universities and they were, of course, occupied mainly with science. In spite of the fact that already the influence of the Renaissance, with its classical studies as the basis of education, had begun to make itself felt, these Spanish-American universities retained, to a great extent, the scientific curriculum. Nor must it be thought that they were shilly-shally institutions of learning, doing nothing in reality, but making a great pretence of studying many things. To know the very opposite we turn to Bourne, himself at the time a professor at Yale, and writing one of the volumes of a series edited by Professor Albert Bushnell Hart, who holds the chair of history at Harvard, to be told in very definite emphatic terms how successfully investigations in science and scientific education were carried on in Mexico. Professor Bourne says:

"Not all the institutions of learning founded in Mexico in the sixteenth century can be enumerated here, but it is not too much to say that in number, range of studies and standard of attainments by the officers they surpassed anything existing in English America until the nineteenth century. *Mexican scholars made distinguished achievements in some branches of science, particularly medicine and surgery, but pre-eminently linguistics, history and anthropology.* Diction-

aries and grammars of the native languages and histories of the Mexican institutions are an imposing proof of their scholarly devotion and intellectual activity. Conspicuous are Toribio de Motolinia's 'Historia de las Indias de Nueva España,' Duran's 'Historia de las Indias de Nueva España,' but most important of all Sahagun's great work on Mexican life and religion."

The scientific products of these universities in America are interesting because almost as a rule we know absolutely nothing about them in English America, and, therefore, conclude there must have been none. The first book written on a medical topic in America was the "Secretos de Chirurgia," written by Dr. Pedrarias de Benavides, which was published at Valladolid in Spain in 1567. The first book on medicine actually published in this country was "Opera Medicinalia," by Francisco Bravo.* On Columbus' second expedition, however, a Dr. Chança who had been physician-in-ordinary to the King and Queen of Spain, was sent with the expedition as what we would now call a scientific attaché. On his return he wrote a volume of scientific observations that he had made in America. Some of these were doubtless written while he was over here, though the book was published in Spain. Dr. Ybarra of New York recently published a résumé of this in the Smithsonian Publications and an article on it in the *Journal of the American Medical Asso-*

* Published in Mexico, 1570.

ciation. It shows very well how wide were the scientific interests of the physicians of the time and how ardent their investigation of science, for there is scarcely a phase of modern science that would be touched on by the corps of scientists now attached to such an expedition which does not receive some serious treatment in Dr. Chança's book. Thus early did the Spanish-Americans take up scientific investigation seriously.

Professor Bourne of Yale, in his chapter on the "Transmission of the European Culture," in the third volume of the American Nation Series,* says (p. 17): "Early in the eighteenth century the Lima University [Lima, Peru] counted nearly 2,000 students and numbered about one hundred and eighty doctors [in its faculty] in theology, civil and canon law, medicine and the arts. Ulloa reports that 'the university makes a stately appearance from without, and its inside is decorated with suitable ornaments.' *There were chairs of all the sciences,* and 'some of the professors have, notwithstanding the vast distance, gained the applause of the literati of Europe.' The coming of the Jesuits contributed much to the real educational work in America. They established colleges, one of which, the little Jesuit College at Juli, on Lake Titicaca, became a seat of genuine learning."

A distinguished professor of medicine in this country to whose attention this state of medical

* Harpers, New York, 1908.

education in the Spanish-American countries, so different from what is thought, was called, said: "What a surprise it is to find that while we have been accustomed to think that the *primum mobile* [the active initiative] in education in this country came from the Anglo-Saxons, we now find that they were long anticipated in every department of education by the Spaniards, though we have been rather accustomed to despise them for their backwardness." With regard to the establishment of the first American medical school, it is no longer a surprise to find that it was established in Mexico, just as soon as we realize that the Mexican University was closely in touch with the traditions of the mediæval universities generally and these all established medical schools as university departments. The standards of these mediæval medical schools were transported to America and maintained. Our medical schools in the United States got away from the universities, became mere preparatory institutions, granted degrees for just as little study as possible, two terms of four months each in most cases, sometimes given in the same calendar year and requiring no preliminary training. We are reforming this now for a generation, but just inasmuch as we are, far from advancing, we are going straight back to the mediæval universities and their standards and methods.

With all this evidence before us it seems perfectly clear that these old mediæval universities

must be considered to have been scientific universities in our fullest modern sense of the term. They devoted all their time to the study of phenomena around them and the attempt to find the principles underlying them. They went at it somewhat differently in many departments of science than those which are now employed, but in all their practical work at least, they anticipated our methods as well as many of our results. The great professors wrote text-books and students who were ardent in the pursuit of knowledge copied out those text-books by hand. They had no way of easily multiplying them almost indefinitely, as we have at the present time. Probably nothing shows so well the enthusiastic zeal of these times in the pursuit of scientific knowledge as the fact that so many copies of these text-books still remain for us. Much has been lost by war and fire, and still more by wanton destruction by people who could not understand, for there were many intervening generations that sold these old manuscripts by the ton for the use of grocers to wrap up butter and any other commodity. If we only had the wealth of manuscript that was originally created it would be easy to fill in the gaps in our knowledge, and show the wonderful scientific scholarship of these mediæval universities.

As it is, there cannot be the slightest doubt that these were great scientific universities. How, then, has the opposite tradition of science only

coming to cultivation in our time obtained a foothold; above all, how has it happened that men have insisted that there was no science in these old days because the Church was opposed to science and would not permit its study or allow of scientific investigation? If we were to believe many writers who have been taken very seriously, anatomy was conducted only under the pain of death, chemistry made one liable to all sorts of penalties and other forms of science were absolutely banned. There is no reason at all for any such declarations from what we know of the history of science. The place where such groundless assertions are found is in the so-called history of religion. The *odium theologicum* was very bitter, and ignorant men said things without knowing, and then their statements were copied by others who knew even less.

Probably there is no more serious blot on the history of education and, above all, the history of science, than the fact that men supposed to be scholarly have been so ready to accept absolutely ignorant statements with regard to the state of science during the Middle Ages. It would be amusing, if it were not so amazing, to recall the utter lack of scholarship that characterized the men who wrote such things, but above all the generations that accepted such history as solemn truth and even conferred academic dignities and degrees on such men. Take a book like Dr. Draper's "Conflict of Science and Religion." It

is founded on the uttermost lack of knowledge of the subjects of which he speaks. It is true that he has consulted historical writers. They were all secondary authorities. He had never gone back to look up a single original document of any kind. He was a physician; supposedly at least, then, he should know the history of medicine. He knows nothing at all about the great medical schools of the thirteenth and fourteenth centuries; of the great period of surgery that occurred at this time he has no inkling. Had he cared really to know anything about the period he could have seen some of the text-books written by these men. Instead we have an exhibition, in his book, of the most consummate assumption of knowledge associated with sublime ignorance and bitter condemnation for old institutions, educational and ecclesiastical, in matters of which he knows nothing, though if he did know, his opinion would surely be just the opposite to that he has expressed.

To a great degree this is true of President White's "A History of the Warfare of Science with Theology." Secondary authorities constantly figure in it, and they are quoted from, as a rule, with the definite idea of proving a particular thesis—that theology is opposed to science. Of course it is very different to that of Draper, there is much more of true scholarship in it, but it is sad to think that the prestige of a president of a great university who had been a professor of

history should have been lent to statements so egregiously misleading as those which are constantly to be found in his work. Even sadder it is to think that this has been accepted by many people as a scholarly work and as representing the last word on the subject.

The " Cambridge Modern History " in its preface said, that history has been a long conspiracy against the truth and that we must now go back once more to the original documents. " It has become impossible," the editors declare, " for the historical writers of the present age to trust without reserve even to the most respected secondary authorities. The honest student continually finds himself deserted, retarded, misled, by the classics of historical literature, and has to hew his own way through multitudinous transactions, periodicals and official publications in order to reach the truth." In no department of history is this expression more true than in that of education, and especially of science and the relation of educational institutions to scientific development. No man should now dare venture to say anything about the state of science at any time in the world's history who has not seen some of the books written at that time. Above all, no one should venture to make little of the past on the strength of what religiously prejudiced writers have said about it.

This story of the mediæval universities is most illuminating from that standpoint. They were

scientific universities closely resembling our own. It has become the custom to talk of them as if they were institutions of learning that accomplished nothing, and wasted their time over trifles. We often hear of how much time was wasted in dialectics in the Middle-Age universities, but surely it was not more than is wasted over technics in our modern university. Hundreds of books were written about the quips and quiddities of logic, but thousands of volumes are full of technics and most of our scientific journals are crowded with it. Let us, then, if for no other reason than our fraternity with them, begin to do justice to these old universities. Their scholars were ardent and zealous, their professors were enthusiastic and laborious. The tomes they issued were larger and their writings more voluminous than those of our own professors. They are hard reading, but no one must dare to criticise them unless he has read them, and, above all, no one must make little of them without knowing something about them at first hand. This is scholarship; the secondary information that has been popular is sciolism. Let us get back to scholarship. That is what we need just now in America.

IDEAL POPULAR EDUCATION

"According to my view he who would be good at anything must practise that thing from his youth upwards, both in sport and earnest, in the particular way which the work requires: for example, he who is to be a good builder, should play at building children's houses; and he who is to be a good husbandman at tilling the ground; those who have the care of their education should provide them when young with mimic tools. And they should learn beforehand the knowledge which they will afterwards require for their art. For example, the future carpenter should learn to measure or apply the line in play; and the future warrior should learn riding or some other exercise for amusement, and the teacher should endeavor to direct the children's inclinations and pleasures by the help of amusements to their final aim in life. The sum of education is right training in the nursery. The soul of the child in his play should be trained to that sort of excellence in which, when he grows up to manhood, he will have to be perfected. Do you agree with me thus far?"—PLATO, *Laws* (Jowett), Vol. IV, p. 173. Scribner, 1902.

"There will be gymnasia and schools in the midst of the city, and outside the city circuses (playgrounds) and open spaces for riding places and archery. In all of these there should be instructors of the young."—PLATO, *Laws* (Jowett), Vol. IV, p. 82. Scribner, 1902.

IDEAL POPULAR EDUCATION *

WE have come to realize in recent years that in many ways our education of the masses is a failure. Teaching people to read and write and occupying them with books till they are fifteen years of age, when all that they will use their power to read for is to devote themselves to three or four editions of the daily paper and the huge, overgrown Sunday papers on their only day of leisure, with perhaps occasional recourse to a cheap magazine or a cheaper novel, in order to kill time, as they frankly declare, is scarcely worth while. Indeed we have even come to realize that such education gives opportunity rather for the development of discontent than of happiness. The learning to write which enables a man to be a clerk, or a bookkeeper, the occupations that are, as a rule, the least lucrative, that are so full that there is no question of organizing them, that confine men for long hours in dark rooms very often and furnish the least possible opportunity to rise, is of itself not ideal. With some rather discon-

* The material for this lecture was collected for a course on the History of Education delivered to the Sisters of Charity of Mount St. Vincent's, at St. Stephen's Hall, New York City, in January and February, 1909. The material was subsequently developed for a similar set of lectures for the religious teachers in the parochial schools of Philadelphia in the spring of 1910.

nected information this is practically all that our ordinary education teaches people, and yet we spend eight years and large sums of money on it. We are just beginning to realize that other forms of education and not these superficial introductions to supposed scholarship, which can mean so little, constitute realities in education.

We have come to realize that Germany, where it is said that more than sixty per cent. of the population has its opportunity for some technical training, so that men are taught the rudiments of a trade or a handicraft or some occupation other than that which shall make them mere routine servants of some one else, does far better than this. By contrast it is remarked that less than one per cent. of our children have the opportunity for such training. We are very prone to think, however, that the technical school is a modern idea. We assume that it owes its origin to the development of mankind in the process of evolution to a point where the recognition of the value of handiwork and craftsmanship has at length arisen. Nothing could well be less true than this. It is true that the eighteenth century saw practically no education of this kind and it was only at the end of the nineteenth century that any modern nation even began to wake up to the necessity for it. In the older times, however, and, above all, in the thirteenth and fourteenth centuries, there was a magnificent training afforded the masses of the people in all sorts of arts and

crafts and trades and occupations, such as can now be obtained only in technical schools. They did not call these teaching institutions technical schools, but they had all the benefits that we would now derive from such schools.

This training the people of these times owed to the gilds. These were, of course, of many forms, the Arts Gilds, the Crafts Gilds, the Merchants Gilds, and then the various Trades Gilds. Boys were apprenticed to men following such an occupation as the youth had expressed a liking for, or that he seemed to be adapted to, or that his parents chose for him, and then began his training. It was conducted for five or six years usually in the house of the master or tradesman to whom he was apprenticed. The master provided him with board and clothes, at least, after the first year, and he gradually trained him in the trade or craft or industry, whatever it might be. After his apprenticeship was over the young man of eighteen or so became a journeyman workman and usually wandered from his native town to other places, sometimes going even over seas in order to learn the foreign secrets of his craft or art or trade, and after three years of this, when ready to settle down, presented evidence as to his accomplishments, and if this was accepted he became a master in his gild. If he were a craftsman or an artisan he made a lock or a bolt or some more artistic piece of work in the metals base or precious, and if this sample was con-

sidered worthy of them by his fellow-gildsmen he was admitted as a master in the gild. This was the highest rank of workman, and the men who held it were supposed to be able to do anything that had been done by fellow-workmen up to that time. The piece that he presented was then called a masterpiece, and it is from this that our good old English word masterpiece was derived.

This might seem a very inadequate training, and perhaps appeal to many as not deserving of the name of technical training or schooling. The only way to decide as to that, however, is to appreciate the products turned out by these workmen. It was these graduates of the apprentice-journeyman system of technical training who produced the great series of marvellous art objects which adorn the English cathedrals, the English municipal buildings, the castles and the palaces and the monasteries of the thirteenth century. It was the graduates of these schools, or at least of this method of schooling, who produced the wonderful stained glass, the beautiful bells, the finished ironwork, the surpassing woodwork, the sculpture, the decoration,—in a word, all the artistic details of the architecture of the wonderful Gothic periods of the thirteenth and fourteenth centuries,—which we have learned to value so highly in recent years. If we wanted to produce such work in our large cities now, we would have to import the workmen. These wonderful

products were made in cities so small that we would be apt to think them scarcely more than insignificant towns in our time. No town in England during the thirteenth century, with the possible exception of London, had more than 25,000, and most of the cathedral towns were under 15,000 in population and many of them had less than 10,000.

The extent to which this teaching went and how much it partook of the nature of real technical training can be very well appreciated from recent studies of these early times. There has probably never been more beautiful handicraftsmanship nor better products of what we now call the arts and crafts than during the thirteenth and fourteenth centuries, when this system of educating the masses became thoroughly organized. Any one who knows the details of the decoration of the great Gothic cathedrals or of the monasteries and castles and municipal buildings of these centuries will be well acquainted with these marvels of accomplishment, scattered everywhere throughout England, France, Germany, Italy and Spain in this period. Something of the story of it all I tried to tell, as far as the cathedrals are concerned, in my book, "The Thirteenth the Greatest of Centuries." Those who care to see another side of it will find it in Mr. A. Ralph Adams Cram's "The Ruined Abbeys of Great Britain."* Mr. Cram, himself a

* New York, The Churchman Company, 1905.

jected, not so much by the foreman as by the critical, educated taste of the workmen themselves who were able to make such beautiful things. Men who could make such artistic products must have labored much and begun over and over again. This must have made the finest occupation of mind that a great mass of people has ever had in all the world's history.

American millionaires model the gates of their parks and the grille doors of their palaces under the wise direction of modern architects who fortunately know enough to follow the designs created by these village workmen of the olden time. Modern palatial residences are glad to have samples of the wood-carving of the thirteenth and fourteenth centuries as models for their decoration, and as attractive pieces around which present-day work may be done. We have to import our workmen, even our large cities cannot supply all that we want of them, and yet little towns of a few thousand inhabitants had them in sufficient abundance in the olden time to enable them to make every portion of their great monumental buildings, cathedrals, abbeys, universities, castles and town halls beautiful in every way. This represents the triumph of a technical training afforded by the gilds of workmen of the olden time. We have to insist on this because our present generation has been so sure that ours was the first generation that gave any serious attention to the education of the masses, that it is important to show by

contrast how much of a mistake we have made and how well an older generation accomplished its purpose.

The chapter of the "Lost Arts" might well be told with regard to this old time. They had secrets in glass-making which were the tradition of the teaching of particular gilds that we have been unable to find again in the modern time. There is a jewel-like lustre to their colors that is sometimes simply marvellous in its depth and purity. At Lincoln the contrast between old and new glass can be seen very well. The old windows of the thirteenth century time were stoned out by the Parliamentarians when they captured the town, because forsooth they could have no such idolatry as that in their presence. The old sexton, who as man and boy for over sixty years had lived his life under the beautiful tints of the old glass, now saw it scattered upon the floor in fragments. He could not part with it thus and so he gathered it up into bags, broken to pieces though it was, and hid it away in the crypt. In the nineteenth century when they were restoring the cathedral they found these fragments of the old windows. They pieced them together and they proved to be so beautiful that, though they could not fit them as they were in the olden time, at least they succeeded in making a beautiful patchwork of colored glass.

Over on the other side of Lincoln Cathedral they then placed some new windows of the mod-

ern time. These were made in France, I believe. They were made about the middle of the nineteenth century, when stained-glass making was almost at its lowest ebb. They were considered to be very beautiful, however, and something like £20,000 sterling was paid for them. The contrast between the two sets of windows is very striking. The old windows are so beautiful, the new ones are so commonplace. The visitor, even though he knows nothing about art, notices the contrast and, if he has an eye for color, views with something of a shock this attempt of the nineteenth century to do something that had been so well done by the gild-trained workmen of the technical schools of the Middle Ages. Though they are represented here only by patched fragments of their work he can scarcely repress a smile at the effect of their work in cheapening the modern. Everywhere it is the same way. Mr. F. Rolfe, writing from Venice, where he has been studying thirteenth-century glass, and talking of its wonderful beauty as compared to anything modern, says: "There are also fragments of two windows, pieced together and the missing parts filled in with the best which modern Murano can do. These show the celebrated Beroviero Ruby Glass (secret lost) of marvellous depth and brilliancy in comparison with which the modern work is merely watery. (The ancient is just like a decanter of port wine.)"

This is the story, no matter where one goes,

throughout Europe. At York they would not surrender the town to the Parliamentary army until a guarantee had been given them that their cathedral would not be devastated as had been the case elsewhere. Besides General Ireton was a friend of the Yorkists and he was ready to agree to the stipulation. The agreement was not fully carried out, fanatic soldiers could not be entirely restrained, but some of the old glass remains. There is probably nothing more beautiful in all the realm of artistic glass-making than the famous Five Sisters window at York. In France the Revolution repeated what the Puritans accomplished of ruin in England. Notre Dame has no trace of its old glass. In some of the cathedrals, however, there has fortunately been preserved for us enough of it to know how wonderfully the makers of it must have been trained, and to let us realize how much of experiment, of investigation, of study that we would now call applied chemistry must have gone to the making of this wonderful old glass. These technical schools were not merely passing on arts and crafts traditions, but each generation was adding to the secrets of the gilds by original research of its own. We are prone to think that such work of original investigation was reserved for our time, but that is only because of the foolish self-complacency which blinds us to what other generations did.

The stained glass of the cathedrals of Bourges

and of Chartres shows the marvellous success of these old workers in glass and their power to make enduring products. It is a mystery to see how their blues have lasted while the sun has shone through them all these years and caused no deterioration or only such as softens and adds to beauty but not really causes to fade. Blue had to be used in great profusion on the windows because the symbolism of color was well determined and blue stood for the virtue of purity and was the Blessed Virgin's color. It had to come in, therefore, on nearly all occasions. Usually by irradiation blue causes surrounding colors to lose something of their tint, and by contrast often spoils what would ordinarily be expected to prove beautiful color effects. These old workmen had found the secret of using it in such a way as not thus to spoil surrounding colors, not to permit it to be too assertive, yet we have wonderful enduring blues that have come down to us practically unchanged through all these centuries. Where the workmen of the old time set themselves producing pure color effects, their windows look like jewels and coruscate in the light of the setting sun—for their most charming effects were particularly obtained in the west windows—with a glorious beauty that has appealed to every generation since.

It was not alone in the building trades, however, that these fine things were accomplished. Bookmaking reached a degree of perfection that

has never been excelled. Humphreys, the authority on illuminated books, declares that the manuscript volumes of the thirteenth century, illuminated as they are by the patient labor and the finely developed taste of this time, are the most beautiful ever made. We have one example of the thirteenth-century illuminated book in the Lenox Library in New York for which, I believe, the museum authorities were quite willing to pay some $18,000, and it is worth much more than that now, for it is a wondrously beautiful example of the illuminations of the time. Like the glassmakers, these bookmakers had secrets that have been lost, and that we with all our knowledge of science and of art in the modern time, or at least our fondly complacent notion of our knowledge of art and science, are unable to find the formulas for. They used blues in their illuminating work that have never faded, though blues are so prone to fade on parchment. They managed their blues in wonderful way and they still are as fresh and as undisturbing of the harmony of other colors as in the long ago. They could burnish gold and it stays as bright as when it was first applied to the leaves, even after seven centuries. We have lost the art of burnishing gold in such applied work and ours becomes dull after a time.

Nor was this teaching of technics confined only to the men. From this period we have the most beautiful needlework in the world. The famous

Cope of Ascoli has recently attracted wide attention. Mr. Pierpont Morgan purchased it and was willing to pay $60,000 for it, though the jewels that had been on it originally had been removed. His experts assured him that it was the most beautiful piece of needlework in the world. Afterwards it was found to have been stolen, and so he restored it to the Italian Government, who did not return it to the little convent of Ascoli in North Central Italy, from which it had been stolen and where it was made at the end of the thirteenth century (1284). Elsewhere in Europe they were doing just as charming work with the needle. In fact England, not Italy, was the acknowledged home of it. The English Cope of Cyon is another notable example of needlework from this time. Thirteenth-century work with the needle is famous in the history of the art. It was the product of just the same forces that gave us the wonderful stained glass. They, too, used colors and applied great art principles to this unpromising mode of expression and accomplished great results. I have had the privilege of seeing the copy of the Cope of Ascoli that was made while in Mr. Morgan's possession, and, like the stained glass of York or Bourges or Chartres, it is one of the things not likely ever to be forgotten, so beautiful a realization is it of what is best in taste and art.

The supremely interesting feature of this popular education was its effect upon the lives, and

minds, and happiness of the workmen. Men got up to their work in the morning not as to a routine occupation in which they did the same things over and over again, until they were so tired that they could scarcely do them any more, and then came home to rest from fatigue in weariness of mind and of body. But they awoke from sound sleep with the memory that ideas had been coming to them the day before, and especially towards evening that, now with fresh bodies, they might be able to execute better, and that it would surely be a pleasure to work out. They came to their work with an artist's spirit, hopeful that they would be able to express in the material what they saw so clearly with their mind's eye. It was tiresome working but the hours were not long, and always there was the thought of accomplishment worthy of the cathedral or the abbey or the town hall, worthy to be placed beside the masterpieces in the best sense of that dear old word, that their fellow-workmen of the other gilds were accomplishing around them. They went to bed healthily tired but not weary, sometimes to dream of their work, not as a nightmare, but as something that represented possibilities of accomplishment. When technical schools can lift men up to this plane then, indeed, there is a chance for happiness even for the workmen.

Compare with this for a moment the lot of the modern workman. He goes out in the morning to work that seldom is interesting, that he

practically never cares to do only that he must get money enough to support himself and his family, and that requires the frequent repetition of routine movements until he is weary, body and soul. He must work or starve. He has very little interest in it as a rule, often none at all, and sometimes he is thoroughly disgusted with it. He must earn money enough to get bread to live to-day so that he shall be able to go and work again to-morrow. And so the humdrum round from day to day with nothing to relieve the prospect until the darkness comes when no man can work. As to dreams of accomplishment or pleasure in his work, as the artist has, there is practically none. He needs must go on, and that is all about it. Is it any wonder that this breeds discontent?

Happy is the man who has found his work. There is only one happiness in this little life of ours and that consists in having work to do that one cares to do, and the chance to do it in such order and with such rewards as make life reasonably pleasant, satisfying from the material side. There are no pleasures in life equal to the joy of the worker in his work when he cares for it. Pleasures are at most but passing incidents. The work is what counts. These workmen of the Middle Ages taught in the technical schools of that olden time had chances for happiness, chances that were well taken, such as perhaps no other generation of workmen could have.

Of course it may be said that, after all, there

were only opportunities for a few to work at the great architectural monuments of the thirteenth and fourteenth centuries. In a sense this is true, but it must not be forgotten that without modern mechanical means and with the slow, patient laborious effort required to raise these huge edifices, much time and many men were required. Besides the cathedrals and the abbeys there were many private castles and town halls, and then in many places the homes of the gilds themselves, some of which, as, for instance, the famous hall of the clothmakers at Ypres, are among the most beautiful monuments of the architecture of that period. In everything, however, the workmen had a chance to do beautiful work. In the textile industries this is the time when some of the most beautiful cloth ever made was invented and brought to perfection. Linen was woven with wonderful skill, satin was invented and brought to perfection, silk brocades of marvellous designs of many kinds were made, threads of gold and silver were introduced into the textures, wonderfully fine effects were studied out and applied in the industries, and just as in the decorative arts so in the arts of cloth-weaving and of many other forms of human endeavor, there was an artistic craftsmanship such as we have lost sight of to a great extent in our age of machinery.

The Irish poet, Yeats, in bidding a group of American friends good-bye some five years ago, said that we had many opportunities for culture

in life here in America, but we must be careful to take them fully and not deceive ourselves with counterfeits, or we would surely miss something of the precious privilege and development that might be ours. Among other things he said, that we must not forget "that until the very utensils in the kitchen are useful as well as beautiful no nation can think of itself as really cultured." If men and women can bear without constraint to handle things that are merely useful without beauty in them, there is something seriously lacking in their culture. Whatever is merely useful is hideous. Nature never made anything that was merely useful in all the world's history. The things of nature around us are all wonderful utilities and yet charmingly beautiful. The pretty flowers are seed envelopes meant to attract birds and insects, so that the seeds may be scattered. The beautiful fruits are other seed envelopes meant to attract man and the animals, so that the seeds may be carried far and wide. The leaves of trees are eminently useful as lungs and stomach and yet are beautiful and have a wondrous variety and a charm all their own.

This precious lesson of nature they seem to have understood well in the Middle Ages and applied it with marvellous perfection. It has often been called to attention that portions of Gothic edifices in dark corners, out of the sight of the ordinary visitor, are just as beautifully decorated in their own way as those which are espe-

cially on exhibition. The gravestones in their churches, though meant to be trodden under foot and often covered by the dirt from the shoes of passersby, yet had bronze ornaments that are so beautiful that in the modern time artists take rubbings of them so as to carry the designs away with them. While every portion of the church is beautiful, the same thing was true in the castles and to a great extent in their own homes. The furniture of that time, even in the houses of smaller tradesmen, was beautiful in its simplicity, its solidity, its charm of line, and then, above all, its absolute rejection of all pretence of seeming to be anything other than it was. Their drinking cups were beautiful, their domestic utensils of various kinds had charming lines and, though they did not have as many as we have in the modern time, what they had were so beautiful that now we find them on exhibition in museums, and we are beginning to imitate them in order that the wealthy may have as bric-à-brac ornaments in their houses, the utensils which were in ordinary use in the homes of the middle classes of the thirteenth century.

There was a satisfaction for the workman in making all these beauteous things. He knew, as a rule, for whom they were to be made. He knew where they were to be placed. He often saw his handiwork afterwards. His reputation depended on it. There was a happiness then in doing it well, and in taking his time to it, that surpasses

any idle pleasure away from his work, as happiness always surpasses pleasure. There was the joy of the doing, and joys we are coming to appreciate mean ever so much more than pleasures. What we want at the present time are more joys and less pleasures. How many men and women were blessed in that time because they had found their work. That is the only real happiness in life. How profusely it was scattered over the mediæval world.

Almost nothing that was made was of a character that could be done by mere routine. A man had to occupy both mind and body in the making of the textiles, of the kitchen utensils, of the furniture, of the various metal utensils required for houses, and so for nearly everything else. It is the workman who has mere routine work that has opportunity to think about other things and brood over his lot and grow more and more dissatisfied. It is the man who does not have to give his mind to what he is doing, but who while his body grows more and more tired accomplishing a limited set of constantly repeated movements, may allow his mind to ponder gloomily over his condition, compare it with that of others and grow envious, who has the worst possible seeds of discontent in his occupation.

Men who did this sort of work that required active mental attention, learned to think for themselves. When they had moments of leisure, not having newspapers and superficial shallow books

to waste their time on, they did some thinking. Any one who has had a little intimate contact with the old-fashioned artisans, the shoemakers, the harnessmakers, the cabinetmakers who work at benches, the woodcarvers, men who have real trades, knows how often one finds among them a deep, serious thinker with regard to the problems of life around. They do not drink in other people's opinions and then think that they are thinking, because they are able to repeat some formulas of words. Such men are not easily led. They make good jurymen, they have logic; above all, they are thoughtful. There must have been much of this in the old time among the handicraftsmen of the Middle Ages. It is doubtless to this that we owe the fact that these men were gradually organized in many wonderful ways into the basic democracy on which the liberties of the English-speaking people of the world are founded. We shall have much more to say of this in treating of the wonderful fraternal organizations, with solutions for nearly every problem of social need, which these men succeeded in working out for themselves in times considered to have been benighted.

There was another phase of the education of these members of the gilds that is even more interesting because it trenches particularly on the intellectual side of life, the provision of entertainment and solves an important social problem. This was the organization of dramatic perform-

ances for the people in which the members of the gilds took part. The stories of the Old Testament and of the New, and of the lives of the Saints, and of various incidents connected with Church history, were worked up into plays and were presented in the various cities. We have the remains of many cycles of these plays. They represent the beginnings of our modern dramatic literature. They were simple and very naïve, but they were interesting and they concerned some of the deepest and most beautiful thoughts with which man has ever been concerned. The members of the gilds and their families took part in them. The principal sets of plays were given in the springtime at the various festivals of the Church, so frequent then. Most of the spare time from Christmas on, especially the long hours of the winter evenings, were occupied in preparations of various kinds for these spring dramatic performances. It is impossible to conceive of anything more likely to give people innocent and joyful yet absorbing occupations of mind than these preparations.

Some of the young men and women were chosen as the actors and had to learn their parts and be rehearsing them. Choruses had to be trained, costumes had to be made, some scenery had to be arranged, everything was done by the members of the particular gild for each special portion of the cycle of the play assigned to them. Garments had actually to be manufactured out of the wool,

LIBRARY OF THE UNIVERSITY OF CALIFORNIA

the dyeing of them had to be managed, spangles had to be made for them, there must have been busy occupation of the most interesting kind for many hands. Of course it is easy to say that these naïve productions could not have meant very much for the people. Any one who thinks so, however, has had no experience with private theatricals, and above all has never had the opportunity to see how much they mean for the occupation of young folks' minds and the keeping of them out of mischief during the winter months when they are much indoors. When the Jesuits founded their great schools in Europe they laid it down as one of the rules of the institute to be observed in all their schools, that plays in certain number should be given every year, partly for the sake of the educational effect of such occupation with dramatic literature, but mainly because of the interest aroused by them and the occupation of mind for young folks which they involve.

As to how much they may mean, perhaps the best way for those of our day to realize it is to take the example of Oberammergau with its great Passion Play still given. Here we have a typical instance of a Passion play of the olden time maintaining itself. The preparations for it occupy the villagers in their mountain home not for months only, but for years before it is given. It represents the centre of the village life, is the main portion of its activities. The place of a

family with regard to the play constitutes its position in the village aristocracy. Something of this must have been true in the gilds of the Middle Ages in these dramatic performances. Just as at Oberammergau nearly every one of the villagers has something to do or is in some way connected with the preparation of the play, so most of the members of the particular gilds and probably their families had some connection with their plays. The children had their interest and curiosity aroused and were allowed to help in their measure, and then when the glorious day of the performance came, there must have been joy in the hearts of all and rejoicing over its success. This is the sort of occupation of mind that we would like to be able to provide for our people in the cities and towns, but circumstances are such that we cannot.

Those who would think that these old Passion and mystery plays meant very little for the people who did not take part in them and, above all, very little for the spectators, in an educational way, forget entirely that this side of the work of the old plays can also be studied at Oberammergau. This little town of 1,400 inhabitants occupies itself for years to such good effect that, when the performances are given crowds flock from all over the world to witness them. When I was there in 1900 I think that I saw the most cosmopolitan gathering that I had ever been in, though I have been to several International Medi-

cal Congresses. There were Russians and Poles, and Scandinavians and Americans and Australians, and there stayed in the house with us a little party from Buenos Ayres, and our seat companions in the train were English, who had been born in India, and they pointed out to us some South Africans who had come to see the Passion Play. This village of 1,400 inhabitants succeeds in producing actors who are capable of arousing thus the interest of the world, and they have artistic taste enough to mount it well, and they manage their performances in thoroughly dignified fashion, and yet in many ways they have the simplicity and, above all, the dear old simple faith of the mediæval people from whom they come. This is the best possible evidence that we could have of the place of the old plays in the life of the people.

We have another form of evidence that is extremely interesting. Out of these old mystery plays, dramas of the Nativity and of the Passion with the introductions and interludes to these central facts of creation, there developed first the morality plays and then the drama of the modern time. Twice in the history of the world, each time quite independent of the other, the drama has originated anew out of religious ceremonials. In old Greece this is the origin of the drama; in the Middle Ages exactly the same thing happened. Nor was this origin unworthy in any way of the great development that came. Some of the old

mystery plays were written with wonderful dramatic insight and with a capacity to bring out dramatic moments that is very admirable. As for the morality plays we have had one of them repeated to us in recent years, "Everyman," and well it has served to show how able was the genius of these old dramatic writers. People of the modern sordid time listened for two hours enraptured and then went away, paying the tribute of silence to this wonderful arrangement of the ideas connected with such a familiar theme as the four last things to be remembered—death, judgment, heaven and hell. Fine as is "Everyman," there are some critics who think the "Castle of Perseverance," written about the same time, the latter part of the fifteenth century, an even greater play.

The most important feature of this work in dramatics of the old gilds was not the entertainment, though with what we know of how low entertainment can sink and how much it can mean for degradation, surely that would be sufficient, but the fact that all of the workmen and their families in the towns were occupied with the high thoughts and the beautiful phrases and the uplifting motives and the deep significance of the Bible stories. These are so simple that no one could fail to understand. They are written so close to the heart of human nature that even the simplest child can appreciate their meaning. They are full of the most precious lessons, yet without

any of that moralizing that is often so sterile and so characteristic of what we call mere preaching. All the townspeople were occupied for months beforehand with these stories. They got ever closer and closer to the heart of the mystery in them. They got closer thus to the heart of the mystery of life. They were made to feel the presence of the Creator and of Providence while occupying themselves with thoughts that are the essence of deepest poetry. What would one not give to be able to occupy a great number of people, for many hours every winter, with such thoughts, not alone for their moral effect but their real educational value. They did not add useless information to useless information, but they did bring development of mind and, above all, heart.

In my book "The Thirteenth the Greatest of Centuries," * I tell the story of how the various trades gilds in the towns divided these phases of the mystery plays among themselves. Every one had an opportunity to do something. They were the tanners and the plasterers, the cardmakers and the fullers, the coopers, the armorers, the gaunters and glovers, the shipwrights, the pessners, fishmongers and mariners, the parchment-makers and bookbinders, the hosiers, the spicers, the pewterers and founders, the tylers and smiths, the chandlers, the orfevers, the goldsmiths, the goldbeaters, the money-makers, and then many other trades whose names sound curious to us of

* Catholic Summer School Press, New York, 1907.

the modern time. The bowyers or makers of bows; the fletchers or arrow featherers; the hayresters or workers in horsehair, the bowlers or bowlmakers, the feystours, makers of saddle-trees; the verrours, glaciers; the dubbers, refurbishers of clothes; the luminers or illuminators, the scriveners or public writers; the drapers, the mercers; the lorymers or bridle-makers; the spurriers, makers of spurs; the cordwaners; the bladesmiths; the curriers; the scalers, and many others, all had their chances to take part in these old plays.

They were not being entertained, but were themselves active agents in the doing of things for themselves and for others. This is what brings real contentment with it. Superficial entertainment that occupies the surface of the mind for the moment means very little for real recreation of mind. What men need is to have something that makes them think along lines different to those in which they are engaged in their daily work. This gives real rest. The blood gets away from parts of the brain where it has been all day, flows to new parts, and recreation is the result. Such entertainment, however, must occupy the very centre of interest for the moment and not be something seen in passing and then forgotten. The modern psychotherapeutist would say, that no better amusement than this could possibly be obtained since it brought real diversion of mind. Above all, we of the modern time who know how vicious, how immoral in its tendencies, how sug-

gestive of all that is evil, how familiarizing with what is worst in men until familiarity begets contempt, commercial entertainment in the shape of dramatics, so-called at least, may be, cannot help but admire and envy and would emulate, if we could, this fine solution of a very pressing social problem that the gilds found in an educational feature that is of surpassing value.

There are three post-graduate courses in modern life that are quite beyond the control of our educational authorities, though we talk much of our interest and our accomplishments in education. These three have more influence over the people than all of our popular education. They are the newspaper, the library and the theatre. Some of us who know what the library is doing are not at all satisfied with it. We are spending an immense amount of money mainly to furnish the cheapest kind of mere superficial amusement to the people of our cities. In so doing we are probably hurting their power of concentration of mind instead of helping it, and it is this concentration of mind that is the best fruit of education. This is, however, another story. Of the newspaper, as we now have it, the less said the better. It is bringing our young people particularly into intimate contact with many of the vicious and brutalizing things of life, the sex crimes, brutal murders and prize-fights, so that uplift and refinement almost become impossible. As for the theatre, no one now thinks of it as

educationally valuable. Our plays are such superficial presentations of the life around us that once they have had their run no one thinks of reviving them. This is the better side of the theatre. The worst side is absolutely in the hands of the powers of evil and is confessedly growing worse all the time.

Besides these indirect educational features the gilds encouraged certain formal educational institutions that are of great interest, and that have been misunderstood for several centuries until recent years. In many places they maintained grammar schools and these grammar schools were eminently successful in helping to make scholars of such of the sons of the members of the gilds as wanted to lift themselves above their trades into the intellectual life. We know more about the grammar school at Stratford-on-Avon than of any of the others. The reason for this is that we have been interested in the antiquities of Shakespeare's town and the conditions which obtained in it, before as well as during his lifetime. The Gild of the Holy Cross of Stratford maintained a grammar school in which many pupils were educated. That this was not a singular feature of gild work is evident from what we know of many other gilds. These gild schools were suppressed in the reformation time and then later had to be replaced by the so-called Edward VI grammar schools, in one of which it is usually said that Shakespeare was educated. As the English

historian Gairdner declared not long since in his "History of the Pre-Reformation Times in England," Edward has obtained a reputation for foundations in charity and in education that he by no means deserved. The schools founded by him particularly were nothing more than re-establishments of popular schools of the olden time whose endowment had been confiscated. The new foundations were makeshifts to appease popular clamor.

The old gilds did not believe in devoting all the early years of children to mere book-learning. Some few with special aptitudes for this were provided with opportunities. The rest were educated in various ways at home until their apprenticeship to a trade began, and then their real education commenced. Our own experience with education in the early years from six to eight or nine is not particularly favorable. Children who enter school a little later than the legal age graduate sooner and with even higher marks than those who begin at the age of six. This has been shown by statistics in England in many cities. What is learned with so much fuss and worry and bother for the children and the teachers from six to eight, is rapidly picked up in a few months at the age of eight or nine, and then is better assimilated. The grammar schools of the gilds took the children about the age of nine or ten and then gave them education in letters. That education, by the way, began at six in the morning and,

with two hours of intervals, continued until four in the afternoon. They believed in the eight-hour day for children, but they began it good and early so that artificial light might not constitute a problem.

The best schooling, however, afforded by the gilds, after that in self-help of course, was that in mutual aid. We are establishing schools of philanthropy in the modern time and we talk much about the organization of charity and other phases of mutual aid. In this as in everything else we map out, as George Eliot once said, our ignorance of things, or at least our gropings after solutions of problems, in long Greek names, which often serve to produce the idea that we know ever so much more about these subjects than we really do. The training in brotherly love and helpfulness in the old gilds was a fine school. Those who think that it is only now that ideas of mutuality in sharing responsibilities, of co-operation and co-ordination of effort for the benefit of all, of community interests, are new, should study Toulmin Smith's work on the gilds, or read Brentano on the foreign gilds. There is not a phase of our organization of charity in the modern time that was not well anticipated by the members of the gilds, and that, too, in ways such as we cannot even hope to rival unless we change the basis on which our helpfulness is founded. Theirs was not a stooping down of supposed better, or so-called upper classes, to help the lower,

but organization among the people to help themselves so that there was in no sense a pauperization.

Every phase of human need was looked to. We are just beginning to realize our obligations to care for the old, and the last twenty years has seen various efforts on the part of governments to provide old-age pensions. In the Middle Ages according to the laws of the gilds the man who had paid his dues for seven years would then draw a weekly pension equal to something more than five dollars now, for all the rest of his life if he were disabled by injury, or had become incapacitated from old age or illness. Then there were gilds to provide insurance against loss by fire, loss by robbery on land and also on sea, loss by shipwreck, loss even by imprisonment and all other phases of human needs. If the workman were injured his family nursed him during the day but a brother member of the gild, as we have said, was sent to care for him at night, and a good portion of his wages went on, paid to him out of the gild chest. If he died his widow and orphans were cared for by a special pension. The widow did not have to break up the family and send the children to orphan asylums. There were practically no orphan asylums. The gilds cared for the children of dead members. As the boys grew up special attention was given them so as to provide a trade for them, and they were given earlier opportunities than others to get on in life.

The orphans were the favorite children of the gilds, and instead of a child being handicapped by the loss of his parents when he was young, it sometimes happened that he got better opportunities than if his parents lived.

These gilds provided opportunities for social entertainment and friendly intercourse and for such acquaintanceship as would afford mutual pleasure and give opportunities for the meeting of the young folks,—sons and daughters of the members of the gild. They had their yearly benefit at which the wives of the members and their sweethearts were supposed by rule to come, and then they had other meetings and social gatherings—picnics in the country in the summer, dances in the winter time and all in a circle where every one knew every one else, and all went well. These are some social features of these gilds educational in the highest sense that we can well envy in the modern time, when we find it so difficult to secure innocent, happy pleasures for young people that will not leave a bad taste in the mouth afterwards. When a member of the gild died his brother members attended the Mass which was said for him and gave a certain amount in charity that was meant to be applied for his benefit. The whole outlook on life was eminently brotherly. There has never been such a teaching of true fraternity, of the brotherhood of man, of the necessity for mutual aid and then of such practice of it as makes it easy, as among these old gilds.

The finest result of this teaching is to be seen in the democratic spirit that gradually arose as a consequence of these gilds and their teaching of self-government in all local affairs to the people. The gilds were arranged and organized in the various parishes. These parishes were independent communities for local affairs who had charge of the police system, the health, the road-making, the path-keeping, the boundary-guarding and, in general, the comfort and convenience of the community. The gildsmen, more than any others, were the factors in these parishes. They accumulated money for the various purposes and had great influence in the development of the community life and the solution of local government problems.

It would be very easy to think that the gilds could not have fulfilled all these duties and subserved all these needs. If we recall, however, that there were 30,000 gilds in England at the end of the fifteenth century, when there were not more than 4,000,000 of people in the whole country, then we can see how much could be accomplished. Alas, at the beginning of the next century all their moneys were confiscated, and because they were Church societies, every one of them requiring attendance at Church duties and at Mass, as well as at the Masses for the dead, but, above all, for the crime of having money in their treasuries at a time when the King needed money and his appetite had been whetted by the spoil of the mon-

asteries and the churches, the gilds were obliterated. Only a few of them in London that had powerful protectors and that escaped on the plea that they were commercial organizations and not religious societies, were able to preserve something of their old-time integrity. These are now so rich that they are the wonder of those who know them. They give us a good idea, however, of the deep foundations that had been established out of the common chest in the purchase of property for these gilds.

In solving the problems of industrial insurance, of providing for the widows and the orphans, of securing annuities when they would be needed, these gilds set us an example that it would be well for us to follow. The insurance money was not accumulated in such huge sums that it would be a constant temptation for exploitation on the part of officials. It was distributed in comparatively small sums in many thousands of treasuries, and was under the surveillance of those most interested in it. The old-age pensions were not governmental, issued in large numbers and open to inevitable abuses, but were given by those who knew, to those whose necessities were well known.

No wonder that we find democratic government developing co-ordinately with these gilds. At the beginning of the thirteenth century Magna Charta was signed. About the middle of it the first English Parliament met, before the end of it the proper representation of the cities and

towns which were mainly controlled by the gilds was secured and during the last quarter of it the English Common Law came into effect so as to secure the rights of all. Bracton's great "Digest of the English Common Law" was written about 1280, and it is still the great sourcebook of the principles of law in English-speaking countries. In many of the States of our Union the Supreme Courts still make their decisions on the basis of the English Common Law, and until a decade or two ago all of them did. The people's rights were secured by the education of the people and the property laws and those for the guardianship of the person and for the prevention of autocratic interference with liberty were all of them put into effect as a consequence of this education in democracy.

This, then, was surely an ideal teaching of the masses, a teaching of the arts and crafts, a teaching of mutual aid, a teaching of true fraternity, a teaching of book-learning whenever that was considered necessary or advisable, a teaching of the rights of man and a wonderful development of laws as a consequence, and all of this accomplished not by the upper classes, stooping to lift the lower classes, but out of the conscious development of the lower classes themselves, so that there came a true evolution and not merely a superficial influence from without. If we want to know how to teach the masses and to help them to contentment, happiness, occupation of mind,

uplifting entertainment, cheerful amusement and, above all, to conscious democratic government, here is the model of it as it can be found nowhere else. I commend it to those who are teaching and who, realizing the failure of our modern education in many ways, are looking about for the remedies that will help to make our popular education more efficient.

The soul of this ideal education of the masses was the training of character. They had no illusions that the mere imparting of information would make people better nor that the knowing of many things would make them more desirable citizens. Probably they did not consciously reason much about these subjects, but their instincts led them straight. Mr. Edward O. Sisson, writing in the *Atlantic Monthly* for July, 1910, says that the final question regarding education is whether it avails to produce the type of character required by the republic (nation) and the race. To accomplish this we need to fit our practice to Herbart's great formula that, "the chief business of education is the ethical revelation of the universe." Take any part of this system of education that I have called the ideal education of the masses and try it by that standard and see how high its mark will be. Their handiwork is mainly an act of devotion to the God of the universe and its products are the most beautiful gifts that ever were offered to him. Cathedral stonework, glasswork, ironwork, beautiful sacred vessels, handsomest

vestments ever made, needlework, lacework, the beautiful setting of the cathedral; what an act of worship it all was! When it was finished, it belonged to no class but to the whole people. It was theirs to be proud of and to worship in.

Their very amusements were often acts of worship. Their plays concerned the revelations of God to man, for they were all founded on the Bible, and even for those who may not accept those revelations as divine the fact that the men and women, the masses, the handworkmen and the little traders, were for many months in each year engaged with the high ethical thoughts that constitute the greatest contribution to the ethical revelation of the universe that we have in literature, must of itself be an eminently satisfying feature of this old-time education. As regards the Creator, these people were constantly made familiar with Him, His works and ways. Their holidays were holy-days. They were anniversaries in the life of the God-Man or His chosen servants. The men and women whom they celebrated on those days were chosen characters who had devoted themselves unselfishly to others, so that the after-time hailed them as saints because of their forgetfulness of self. We know what this constantly recurring reminder of the lives of great men and women may be, and then we must not forget that on these days in their great cathedral they heard the story of the life of the saint of the day, and often a discourse on the qualities that

stamped him or her as worthy of admiration. Let us remember, above all, that there were as many women saints as men, and that these were held up for the admiration and emulation of growing youth. This was ethical training at every turn in life.

Above all, there was constant training in that thoughtfulness for others that means so much in any true system of education. When members of the gilds fell ill, their families nursed them during the day, but members of the gilds chosen for that purpose nursed them at night. It was felt that the family did quite enough not to exhaust itself by night watching. When brother members of the gild died their fellows attended their funeral in a body, and, above all, took part in the Mass for their souls. People who do not understand the Catholic idea of Mass for the dead will not appreciate this in the way that Catholics do, but at least they will understand the brotherliness of the act and the beautiful purpose that prompted so many to gather, in order that even after death they might do whatever they could for this departed brother. Besides the death of a brother gildsman was the signal for the giving of alms because the merit of these alms, it was felt, could be transferred to his account, and so the bond of fraternity continued even in the life beyond. The ethical effect of all this on the minds of people who sincerely believed can scarcely be exaggerated. Here is a training of the will and

of character, and a teaching of the relationship of man to man and of man to the Creator carried out into all the smallest details of life.

Above all, these generations had a training in personal service for one another. Every one exercised charity. It was not a few of the very wealthy who practised philanthropy. They had safeguards which, as far as is possible, prevented abuse of this charity. The alms, for instance, that was given on the occasion of a brother's funeral was not distributed hit or miss and all at one time, but members of the gild bought from the treasurer tokens which might be redeemed in bread and meat or in cast-off clothing or in some other way. These were distributed to the poor as they seemed to need them. If you met a poor man who seemed really in want you could give him one or more of these tokens and then be sure that while he would get whatever was necessary to supply his absolute needs, he would not be able to abuse charity. In our time we constantly have stories of large accumulations on the part of street beggars who own valuable property and have accounts in savings banks and the like. There was no possibility of this under the mediæval system and yet charity was widely exercised, every one took some part in it, and there was that training, not only in effective pity for affliction, but also in helpfulness for others, which means so much more than the exercise of occasional charity, because, for the moment, one is touched by the

sight of suffering or has remorse because one feels that one has been indulging one's self and wants the precious satisfaction that will come from a little making up for luxurious extravagance.

In our time, when we have gradually excluded moral teaching and training almost entirely from our schools and our methods of education, this phase of the ideal education of the masses is particularly interesting. Milton declared that "the main skill and groundwork of education will be to temper the pupils with such lectures and explanations as will draw them into willing obedience, inflamed with the study of learning and the admiration of virtue, stirred up with high hopes of living to be brave men and worthy patriots." Their great stone-books, the cathedrals, where all who came could read the life of the Lord, the frequent reminders of the lives of the saints, doers among men who forgot themselves and thought of others, the fraternal obligations of the gilds and their intercourse with each other, all these constituted the essence of an education as nearly like that demanded by Milton as can well be imagined. It seems far-fetched to go back five, six, even seven centuries to find such ideals in practice, but the educator who is serious and candid with himself will find it easy to discover the elements of a wonderful intellectual and, above all, moral training of the people, that is the whole people from the lowest to the highest, in these early days.

CYCLES OF FEMININE EDUCATION AND INFLUENCE

"And if I am right nothing can be more foolish than our modern fashion of training men and women differently, whereby one-half of the power of the city is lost. For reflect—if women are not to have the education of men some other must be found for them, and what other can we propose?"—PLATO, *Laws* (Jowett), p. 82. Scribner, 1902.

CYCLES OF FEMININE EDUCATION AND INFLUENCE *

NOTHING is commoner than to suppose that what we are doing at the present day is an improvement over whatever they were doing at any time in the past in the same line. We were rather proud during the nineteenth century to talk of that century as the century of evolution. Evolutionary terms of all kinds found their way even into everyday speech and a very general impression was produced that we are in the midst of progress so rapid and unerring, that even from decade to decade it is possible to trace the wonderful advance that man is making. We look back on the early nineteenth century as quite hopelessly backward. They had no railroads, no street-car lines, no public street lighting, no modes of heating buildings that gave any comfort in the cold weather, no elevators, and when we compare our present comfortable condition with the discomforts of that not so distant period, we feel how much evolution has done for us, and inevitably

* The material for this was gathered for a lecture on the History of Education delivered for the Academy of the Sacred Heart, Kenwood, Albany, N. Y., and St. Joseph's College, Chestnut Hill, Philadelphia, Pa. Very nearly in its present form the address was delivered before the League for the Civic Education of Women, at the Colony Club, New York City, in the winter of 1910.

conclude that just as much progress as has been made in transportation and in comfort, has also been made in the things of the mind, and, above all, in education, so that, while the millennium is not yet here, it cannot surely be far off; and men are attaining at last, with giant strides, the great purpose that runs through the ages.

Probably in nothing is the assumption that we are doing something far beyond what was ever accomplished before, more emphatically expressed than in the ordinary opinions as to what is being done by and for women in our generation. We have come to think that at last in the course of evolution woman is beginning to come into something of her rights, she is at last getting her opportunity for the higher education and for professional education so far as she wants it, and as a consequence is securing that influence which, as the equal of man, she should have in the world. Now there is just one thing with regard to this very general impression which deserves to be called particularly to attention. This is not the first time in the world's history, nor the first by many times, that woman has had the opportunity for the higher education and has taken it very well. Neither is it the first time that she has insisted on having an influence in public affairs, but on the contrary, we can readily find a very curious series of cycles of feminine education and of the exercise of public influence by women, with intervals of almost negative phases in these matters that

are rather difficult to explain. Let us before trying to understand what the feministic movement means in our own time and, above all, before trying to sum up its ultimate significance for the race, study some of the corresponding movements in former times.

The most interesting phase of the woman movement in history is that which occurred at the time of the Renaissance. Because it is typical of the phases of the feministic movement at all times, and then, too, because it is closer to us and the records of it are more complete, it will be extremely interesting to follow out some of the details of it. It may be necessary for that to make a little excursion into the history of the period. During the early fifteenth century the Turks were bothering Constantinople so much, that Greek scholars, rendered uncomfortable at home, began making their way over into Italy rather frequently, bringing with them precious manuscripts and remains of old Greek art. Besides commerce aroused by the Crusades was making the intercourse between East and West much more intimate than it had been and, as a result, a taste for Greek letters and art was beginning to be felt in certain portions of Italy. When Constantinople fell, about the middle of the fifteenth century, the prestige of the old capital of the Greek empire was lost, and scholars abandoned it for Italy in large numbers. This is the time of the Renaissance. The rebirth that the word

signifies, is not a rebirth of art and architecture and literature into the modern world, as if there had been nothing before, for Gothic art and architecture and literature is quite as wonderful, if not more so, than anything that came after, and there are good authorities who insist that the Renaissance hurt, rather than helped, Europe. The Renaissance was a rebirth of Greek ideas and ideals in æsthetics into the European world, and while we may not agree with Sir Henry Maine that whatever lives and moves in the intellectual world is Greek in origin, there is no doubt that Greek can be the source of most wonderful incentive and such it proved to be during the fifteenth century.

Men and women began to study Greek and they paid much more attention as a consequence to the Latin classics modelled on the Greek, and so the New Learning, the so-called humanities, became the centre of intellectual interest. They were studied first in private schools, but before long a place for these new studies was demanded in the curriculum of the universities. The universities, however, were occupied with the so-called seven liberal arts, which were really scientific studies. There was geometry, astronomy, music, grammar, rhetoric, logic and metaphysics, with considerable ethics and political science, so that they resembled in many ways our modern universities as they have been transformed since the re-introduction of scientific studies into them.

The university faculties were content and conservative after the fashion of universities ever, and they quite naturally refused to entertain the notion of such a radical change as the introduction of classical studies into the curriculum. This is just exactly what the classical universities of the early nineteenth century did when they were asked by scientific enthusiasts to re-introduce scientific studies into the curriculum, which in the course of 300 years had come to be made up almost exclusively of classical studies. In this curious way does history repeat itself.

Unable to obtain a place for the studies in humanism in the universities, ruling princes and wealthy members of the nobility proceeded to found special schools for these subjects. In these schools without the traditions of the past, the women asked and obtained the privilege of studying. There had come a noteworthy change in intellectual interest, a novelty was introduced into education. Whenever that happens woman always asks and always obtains the privilege of the higher education. During the Renaissance period she proceeded to show her intellectual power. Many of the women of the Renaissance became distinguished for scholarship. Perhaps one thing should be noted with regard to that. Their reputation for scholarship was largely confined to their younger years. They were more precocious, or applied themselves better to their studies, and accordingly knew more of the classics

at twenty than their male relatives who had the same opportunities. Indeed we hear of them as brilliant scholars at sixteen and seventeen and eighteen. They took part in Latin plays that were brilliantly performed before the nobility, higher ecclesiastics, cardinals and even the Popes. They were brilliant in music, in the languages and in their taste for art. Later on in life we do not hear so much of them. They evidently were ready to leave the serious work of scholarship to the men and content themselves with being enlightened patrons of literature, beneficent advocates of the arts, liberal customers of the artistic geniuses of the time. Above all, we find no great original works from them. They are charming appreciators but not good inventors—at this time, of course.

While they do not occupy themselves with dry-as-dust scholarship, there is no doubt at all that much of the glory of the Renaissance, with its great revivals in art and letters, is due to the women of the time. It was they who insisted on the building of the town houses, finely decorated and with charming objects of art in them. It was for them that the artists of the time made many beautiful things. They were very often the patrons who enabled churches to obtain from artists the wonderful paintings of the time. The sculptors made for them many charming pieces of bric-à-brac. The artists laid out beautiful gardens that we are only just beginning to appre-

ciate again now that our taste for outdoor life is being properly cultivated. They bought the books that were issued by the Manutiuses at Venice. Isabella D'Este had a standing order that all the books issued from this great Venetian press should be sent to her. Books were costly treasures in these times. A single volume of one of these incunabula of printing so beautifully issued from Manutius's printing establishment was worth nearly one hundred dollars in our money.

The women designed their own dresses. They encouraged the miniature painting of the time and the illumination of books and occasionally took up these arts themselves. They fostered the development of textile industries, lacemaking and the various kinds of figured cloth, so that we have some of the most beautiful inventions in this kind at this time. Tapestry-making took on a new vigor and beauty because of their patronage. They wanted beautiful glass, and new periods of marvellous development of glass-tinting and making were ushered in. As can be readily understood these are the sort of things that men are not interested in, and whenever in the history of the race we find a period of development of this kind we can be sure that educated women are responsible for it. These women of the Renaissance decorated their homes beautifully, had them built substantially, with wonderful taste and, above all, had them set charmingly in the Italian

Renaissance gardens that are so deservedly admired.

While they were thus occupied with the beautiful things of life some of them wrote poetry that has lived (Lucrezia Tornabuoni dei Medici, Vittoria Colonna), some of them indulged in fiction (Marguerite of Navarre) that is still read, and a great epoch of fiction-writing responded to their interest as readers; some of them mixed in politics and proved their power, at times some of them acted as regents for their sons (Forli, D'Este), and succeeded magnificently, so that we have every phase of development of woman's power. There can be no doubt that at this period woman was afforded every opportunity for the development of her intellectual life, and that she took her opportunities with great success.

We have from this time probably the names of more distinguished women than from any other corresponding period in the world's history. There was a wonderful group of women at the Court of Giovanna of Naples in the first half of the fifteenth century, because Naples got her Renaissance impulses first, being closer by sea to Constantinople and having many Greek traditions from the old days when Southern Italy was Magna Græcia. Then there are a series of finely educated women connected with the Medici household at Florence. The mother of the great Lorenzo is the best known of them, and her poems show real literary power. The D'Este family is

better known generally, and then there were the Gonzagas, some of the women of the house of Forli, Vittoria Colonna, whose influence over art and artists shows her genius quite as well as does her writing, and many others. Everywhere women are on a footing with men as regards the intellectual life. Everywhere they direct conversations seriously with regard to literary and artistic subjects, and, indeed, it is they who, in what we would now call salons, serve to make intellectual subjects fashionable, and so concentrate attention on them and secure the patronage so necessary for artists and writers if they are to subsist while doing their work.

It would be a great mistake, however, to think for a moment that it was in Italy alone that such opportunities for higher education and intellectual influence were allowed to women. Just as the Renaissance movement itself spread throughout Europe affecting the education, the literature, the art, the architecture, the arts and crafts of the time and the nations, so did the feministic movement spread, and everywhere we find striking expressions of it. In France, for instance, the Renaissance can be traced very easily in letters and architecture, and was not much behind Italy in feminine education. Queen Anne of Bretagne organized the Court School of the time, and interest in literature became the fashion of the hour. Marguerite of Navarre is a woman of the Renaissance, and so is Renée of Anjou, while the name

of Louise La Cordière shows, for *la cordière* means the cord-wainer's daughter, that higher education for women was not confined to the nobility. Mary Queen of Scots, educated in France, whose letters and whose poetry with occasional excursions into Latin, show us how thoroughly educated she was,—it must not be forgotten that she was put into prison at twenty-four and never again got out,—is a typical woman of the French Renaissance. Sichel has told the story of these women of France very well, and those who want to know the details of the feministic movement of the time should turn to him.

In Spain, too, the Renaissance movement made itself felt in every department. Most of Spain's cathedrals were finished during the Renaissance time, and some of the work is the admiration of the world. Spain's literary Renaissance came a little later, but when it did it contributed at least two great names to the world literature—Cervantes and Calderon. The women of the nation were also affected, and Queen Isabella was a deeply intellectual woman of many interests. Spain contributed to the feministic movement probably the greatest name in the history of feminine intellectuality in St. Teresa. How much of sympathy there was with this great expression of feminine intelligence will be best appreciated from the fact that Spanish ecclesiastics talk of Teresa as their Spanish Doctor of the Church, and that in Rome there is amongst the statues

LIBRARY OF THE UNIVERSITY OF CALIFORNIA

of the Doctors and the Fathers in the Church one woman figure, that of St. Teresa, with the title *mater spiritualium*—mother of spiritual things. Her books, profoundly admired by the Spaniards, were the favorite reading for such extremely different minds as Fénelon and Bossuet, and have been the storehouse ever since for German mystics. They were beautifully translated by Crashaw into English, and have been the subject of great interest during the present feministic movement, especially since George Eliot's reference to her in the preface of "Middlemarch."

In England the Renaissance did not affect art much, nor architecture, though it did profoundly stir the men of letters, and the great Elizabethan period of English literature is really an expression of the Renaissance in England. Here almost more than anywhere else in Europe the women shared in the uplift and devotion to things intellectual that developed. Queen Mary was a well-educated woman, Queen Elizabeth read Greek as well as Latin easily, Lady Jane Grey preferred her lessons in Greek, under Roger Ascham, to going to balls and routs and hunting parties, and was a blue-stocking in the veriest sense of the term. It has been hinted that it was perhaps this that disturbed her feminine common sense and allowed her to be led so easily into the foolish conspiracy in which she lost her life. The losing of one's head in things deeply intellectual may sometimes mean the losing of it

more literally when crowns are at stake. There are many other names of noble women of this time that might be mentioned and that are well known for their intellectual development. That the movement did not confine itself to the higher nobility we can be sure, for when the better classes do ill they are imitated, but so also are they imitated when they do well. Besides, the story that we have of Margaret More and her friends shows that the middle classes were also stirred to interest in things intellectual.

The usual objection, when this story of the Renaissance and the feministic movement connected with it is told, if the narrator would urge that here was an earlier period of feminine education than ours, is that, after all, the education of this period was confined to only a few of the nobility. This is not true, and there are many reasons why it is not true. First, the upper classes are always imitated by the others, and if there was a fashion for education we can be sure that it spread. We have not the records of many educated women, but those that we have all make it clear that education was not confined to a few, and that those of the middle classes who wanted it could readily secure it. There were probably as many women to the population of Europe at that time enjoying the higher education as there are proportionately in America at the present time. Europe had but a small population altogether in the fifteenth century. There

were probably less than 4,000,000 of people in England at the end, even, of the sixteenth century. In Elizabeth's time when the census was taken, because of the Spanish Armada, these were the figures. There were not many more people in all Europe then than there are now in England. If out of these few, comparatively, we can pick out the group of distinguished women whom I have just spoken of, then there must have been a great many sharing in the privileges of the higher education.*

It is true that it was, as a rule, only the daughters of the nobility who received the opportunity for the higher education, or at least obtained it with facility. It must not be forgotten, however, just what the nobility of Italy, and,

* What an interesting reflection on the notion of supposed progress is the fact pointed out by Ambassador Bryce in his address on Progress (*Atlantic*, July, 1907), that while out of 40,000,000 of people there were so many genius men and women accomplishing work that the world will never willingly let die, we with a population ten times as great cannot show anything like as many. Most of the great names that are most familiar to the modern mind come in a single century,—the sixteenth. At the present time the western civilization then represented by 40,000,000 has near to 500,000,000 of people. We make no pretension at all, however, to the claim that we have more great men than they had. We should have ten times as many, but on the contrary we are quite willing to concede that we have very few compared to their number and almost none, if indeed there are any, who measure up to the high standards of achievement of that time more than four centuries ago. It is thoughts of this kind that show one how much we must correct the ordinarily accepted notions with regard to progress and inevitable development, and each generation improving on its predecessors and the like, that are so commonly diffused but that represent no reality in history at all.

indeed, of other countries also, represented. The conditions there are most typical and it is worth while studying them out. The Medici, for instance, of Florence, whose women folk were so well educated, were members of the gilds of the apothecaries, as their name indicates, who made a fortune on drugs and precious stones and beautiful stuffs from the East, and then became the bankers of Europe. Noblemen were created because of success in war, success in politics, success in diplomacy, but also because of success in commerce, and occasionally success in the arts. Not many educators and artists were among them any more than in our time, because they were not, as a rule, possessed of the fortune properly to keep up the dignity of a patent of nobility. The daughters of the nobility of Italy, however, were not very different, certainly their origin was very similar to that of the daughters of the wealthy men of America, who are, after all, the only ones who can take advantage of the higher education in our time. We must not forget that, compared to the whole population, the number of women securing the higher education is very limited.

To think that the Renaissance with this provision of ample opportunities for feminine education was the first epoch of this kind in the world's history would be to miss sadly a host of historical facts and their significance. Unfortunately history has been so written from the standpoint of

man and his interests, that this phase of history is not well known and probably less understood. History has been too much a mere accumulation of facts with regard to war, diplomacy and politics. While we have known much of heroes and battles, we have known little of education, of art, of artistic achievement of all kinds. We have known even less of popular movements. We have known almost nothing of the great uplift of the masses which created the magnificent arts and crafts of the Middle Ages, that we are just beginning to admire so much once more, and our admiration of them is the best measure of our own serious artistic development. Kings and warriors and kings' mistresses and ugly diplomacy and rotten politics, have occupied the centre of the stage in history. Surely we are coming to a time when other matters, the human things and not the animal instincts, will be the main subject of history; when fighting and sex and acquisitiveness and selfishness shall give place in history to mutual aid, uplift, unselfishness and thoughtfulness for others.

As soon as history is studied from the standpoint of the larger human interests and not that of political history, it is easy to find not only traces but detailed stories of feminine education at many times. Before the Renaissance the great phase of education had been that of the universities. The first of the universities was founded down at Salerno around a medical school, the

second that of Bologna around a law school and the third that of Paris with a school of philosophy and theology as a nucleus. This seems to be about the way that man's interests manifest themselves in an era of development. First, he is occupied mainly with his body and its needs; then his property and its rights, and finally, as he lifts himself up to higher things, his relations to his fellow-man and to his Creator come to be profound vital interests. Such, at least, is the story of the origin of the universities in the thirteenth century.

The surprise for us who are considering the story of feminine education and influence is what happened at Salerno. Here some twenty miles back from Naples, in a salubrious climate, not far from the Mediterranean, where old Greek traditions had maintained themselves, for Southern Italy was called Magna Græcia, where the intercourse with the Arabs and with the northern shores of Africa and with the Near East, brought the medical secrets of many climes to a focus, the first modern medical school came into existence. In the department of women's diseases women professors taught, wrote text-books and evidently were considered, in every sense of the word, coordinate professors in the university. We have the text-book of one of them, Trotula, who is hailed as the founder of the Salernitan School of Women Physicians, the word school being used in the same sense as when we talk of a school of

painting, and not at all in the sense of our modern women's medical schools. Trotula was the wife of the professor of medicine at the university, Platærius I, and the mother of another professor at the university, Platærius II, herself a professor like them.

There are many other names of women professors at the University of Salerno in this department. Women, however, were not alone allowed to practise this single phase of medicine, but we have licenses granted to women in Naples, of which at this time Salerno was the university, to practise both medicine and surgery. It seems to have been quite common, I should say, at least as common as in our own time for women to study and practise medicine, and their place in the university and the estimation in which their books were held, show us that all the difficulties in the way of professional education for women had been removed and that they were accepted by their masculine colleagues on a footing of absolute equality.

Probably the most interesting feature of this surprising and unexpected development of professional education for women is to be found in the conditions out of which Salerno developed. The school was originally a monastic school under the influence of the Benedictine monks from Monte Cassino not far away. The great Archbishop Alphanus I, who was the most prominent patron and who had been a professor there, was himself

a Benedictine monk. How intimately the relations of the monks to the school were maintained can be realized from the fact that when the greatest medical teacher and writer of Salerno, Constantine Africanus, wanted to have leisure to write his great works in medicine, he retired from his professorship to the monastery of Monte Cassino. His great friend Desiderius was the abbot there, and his influence was still very strong at Salerno. Desiderius afterwards became Pope, and continued his beneficent patronage of this Southern Italian university. In a word, it was in the midst of the most intimate ecclesiastical and monastic influence that this handing over of the department of women's diseases to women in a great teaching institution occurred. The wise old monks were thoroughly practical, and though eminently conservative, knew the needs of mankind very well, and worked out this solution of one series of problems.

When the next great university, that of Bologna, was founded, it developed, as I have suggested, around a law school. Irnerius revived the study of the old Roman law, and his teaching of it attracted so much attention that students from all over Europe flocked to Bologna. Law is different from medicine in many respects. The right of women to study medicine will readily be granted, their place in a system of medical education is manifest. With regard to law, however, there can scarcely be grave question as to the

advisability of woman studying it unless economic conditions force her to it. This was particularly true at a time when woman could own no property and had no rights until she married. In spite of the many inherent improbabilities of this development, the law school was scarcely opened at Bologna before women became students in it. Probably Irnerius' daughter and some of her friends were the first students, but after a time others came and the facilities seem to have been quite open to them. As out of the law school the university gradually developed, opportunities for study in the other higher branches were accorded to women at Bologna. We have the story of their success in mathematics, in philosophy, in music and in astronomy.

According to a well-known and apparently well authenticated tradition, one distinguished woman student of Bologna, Maria Di Novella, achieved such success in mathematics about the middle of the thirteenth century that she was appointed professor of mathematics. Apparently the faculty of Bologna had no qualms of educational conscience nor betook themselves to such halfway measures as one of our modern faculties, which accords a certificate to a woman that she has passed better in the mathematical tripos than the Senior Wrangler, though they do not accord her the Senior Wranglership. The story goes on to say that Signorina Di Novella, knowing that she was pretty, and fearing that her

beauty would disturb the minds, at least, of her male students, arranged to lecture from behind a curtain. This would seem to indicate that the blue-stockings of the olden time could be as surpassingly modest as they were intelligent. I remember once telling this story before a convent audience. The dear old Mother Superior, who had known me for many years, ventured to ask me afterwards, "Did you say that she was young?" and I said yes, according to the tradition; "and handsome?" and I nodded the affirmative, "Well, then," she said, "I do not believe the rest of the story." But then, after all, what do dear old Mothers Superior know about the world or its ways, or about handsome young women or their ways, or about the significance of traditions which serve to show us that even pretty, intelligent women can be as modestly retiring and as ready to conceal their charms as they are to be charmingly courteous and careful of the feelings of others?

It was not alone in law and mathematics, however, that women were given opportunities for the higher education and even for professional work at the University of Bologna. In medicine, as well as in law, women reached distinction. The first great professor of anatomy of modern times is Mondino, whose text-book on dissection, published at the beginning of the fourteenth century, continued to be used in the medical schools for two centuries. One of his assistants was Ales-

sandra Giliani, one of the two university prosectors in anatomy. At the Surgeon General's Library in Washington, in one of the early printed editions of Mondino's work, the frontispiece shows a young woman making the dissection before him preparatory to his lecture. To her, according to an old Italian chronicle, we owe the invention of methods of varnishing and painting the tissues of cadavers so that they would resemble more their appearance in the living state, that they might be preserved for further use, thus avoiding to some extent the necessity for constant repetition of the deterrent work of dissection, even more deterrent at that time.

It is curiously interesting to find that another great improvement in the teaching of anatomy, invented in Italy nearly four centuries later, came also from a woman teaching at an Italian university, Madame Manzolini. The tradition connecting these two women is unbroken. There is not a century from the thirteenth to the eighteenth in which there were not distinguished women professors at the universities of Italy, and, therefore, also students in large numbers.

Just how many women students there were we do not know. It might seem to be a comparatively easy problem to find out just how many there were at any given time by looking up the registers of the universities. Once in Bologna itself I got hold of the old university registers, confident that now I would learn just what was

the proportion of women students at the university. I was utterly disappointed, however. Italian mothers had, so far as the settlement of this question is concerned, the unfortunate habit occasionally of giving boys' names to girls, and girls' names to boys. They called their children after favorite saints. A girl might well be called Antonio, for the feminine form was not in common use in earlier times. Many boys had for first name Maria. It used to be the custom in Venice for every child, no matter what its sex, to receive from the Church the two names Maria Giovanni, and then the parents might add what other names they pleased. The names of royalty, with their frequent use of mingled masculine and feminine names, show how much confusion can be worked to any scheme for the determination of the sex of students at the old universities by this, for us, unfortunate habit.

Curiously enough, it was during the thirteenth century when the development of feminine education in the early university period was at its height, that certain changes in the domestic economy of the Bolognese are worthy of notice. Two kinds of prepared food became popular, if they were not, indeed, both invented at this time. One of them, bearing the classic name Bologna, is still with us, has spread throughout the world, and is likely to continue to be an important article of food for many centuries more. Another form of prepared food was a sort of dessert called Bologna

pudding, prepared from cereals, and which can still be purchased in Bologna, though foreigners, as a rule, do not care much for it. These two articles of food modified materially the preparation of food for meals at this time. It was possible to buy both of these, as now, ready made, and so the housewife was spared the bother and trouble and expenditure of time required for this work. We have here one phase of the origin of the delicatessen stores. This sort of change in domestic economy has always been noted whenever women have gone out of the home for other occupations and have become something less—or more—than the housewives and mothers they were before. Such changes in the dietary, however, in the direction of ready-made food are never popular with men. One German historical writer has been unkind enough to say that this is one of the reasons why the higher education gradually became much less popular, or at least attracted less attention than before. "Women want things for themselves, and if they are opposed insist on getting them," is the way this cynic Teuton puts it. "If, after a time, however, having got what they want, they find that the men do not like them to have it, they gradually abandon it." According to him Bologna and Bologna pudding saved the stooping over the kitchen range, or whatever took its place in those days, and gave all classes of women more opportunity for intellectual development or at least

for occupation with things different from household duties, but after a time the more or less resentful attitude of the men brought about a change. However that may be is hard to say.

Another interesting feature of the history of these times connected in some way with feminine education or, at least, with feminine occupation with other things besides their households, was a great devotion to a particular breed of pet dogs of which one hears much in the accounts of the life at Bologna at this time. Here, once more, the German cynic has had his say. He has suggested that, whenever women became occupied with things outside their home, with a consequent diminution in the number of children, they are almost sure to find an outlet for their affections in devotion to dogs and other pets. Apparently he would suggest that they literally go to the dogs. It is very curious that just during this thirteenth century, when feminine education at Bologna is at its height, one hears so much of these pets. At other times in the world's history, when women have taken to intellectual interests and especially when there has been a fall in the birth-rate, this same attention to pet animals is worthy of study.

After the thirteenth century there seems to have been a reaction against these pets. It is to be hoped that there is no connection between this and the prepared foods spoken of, but the decline in the popularity of pets and of woman's

occupation with intellectual interests went hand in hand. For all of this I am indebted to German authorities whose attitude towards feminine education may somewhat prejudice them and, indeed, probably does so, but these things are only mentioned as showing certain views that are held. The interesting thing for us is that after a period of somewhat more than a century of rather intense interest on the part of the women in nearly every phase of the intellectual life, there is then a diminution of interest, so that by the end of the fourteenth century women, even where feminine intellectual life was vigorous, are occupied almost without exception as they were before the university period, mainly with domestic concerns.

While feminine education was so common in the ecclesiastically ruled universities of Italy, the custom did not spread in Western Europe. The reason is not far to seek. All of the western universities owe their origins to Paris. Oxford was due to a withdrawal of English students from Paris, Cambridge to a similar withdrawal from Oxford. Many of the Scotch universities are grandchildren of Paris. All of the French universities are direct descendants, except Montpellier. The Spanish universities have a similar relation. The experience with feminine education at Paris had been unfortunate. The Héloïse and Abélard incident came in a formative stage of the university. It settled unfavorably the

whole question of feminine attendance at universities for the west. It seems a small thing to have such a wide and far-reaching influence, but it is very often on little things that the success or failure of great social movements of any kind depends. We have practically no record of any relaxation of university regulations in this matter in the west. Perhaps the Teutonic character was opposed to it, perhaps the Teutonic women were less anxious for it, being more occupied with Church and children and their home, but there was none, and its absence is responsible for the feeling so common among us, that now for the first time in the world women are enjoying the opportunity for the higher education.

Even the university epoch, however, is not the first phase of opportunities for the education of woman in modern history. Far from it, indeed, we can find much more than traces of a feminist movement in other centuries before this, and, indeed, in many of them. When Charlemagne established schools for his people and invited Alcuin, the English monk, to develop educational institutions for his people, the first and most important school was that of the imperial palace where Alcuin himself taught. In this the women of Paris were given opportunities quite as well as the men; indeed, they seem to have taken a more vivid interest and their example seems to have been the highest incentive for many of the men to take up a work so foreign to their natures,

for as yet they had all the barbarous instincts of their Gothic ancestors, only slightly tamed and modified by two or three centuries of gradual uplift and religious training of character. There are letters from the women of the palace, and especially Charlemagne's daughter, to Alcuin, discussing phases of his teaching and suggesting problems and questions with regard to the matters which he had been making the subject of his instruction.

It would be easy to think that this incident of the Palace School did not mean very much and that its passing influence did not make itself felt widely nor for long. The state of education at this time must not be forgotten. Only the clergy, as a rule, had leisure for it. All the rest of the world were engaged either in the frequent wars or in a tireless struggle for subsistence as farmers, merchants and craftsmen. The nobility neglected education just as much as the upper classes always do, though there were certain fashions which gained a foothold and that seem to show that they had some interest. Many a nobleman of the mediæval centuries, however, boasted that he could not sign his own name. He was rather proud of the fact that he had not lowered himself to mere book knowledge. There were large numbers of the clergy and the monks, however, and these were the scholars of the period.

There were also at this time large numbers of religious women, and these in their leisure hours

spent much time at educational matters and some of them accomplished lasting results. The mother of the family, the court dame, the wife of the nobleman, whose castle was much more the home of work than it has ever been at any time since, had but little leisure for the intellectual life. The nuns devoted themselves to beautiful handiwork, to the composition as well as the transcription of books and to the cultural interests generally.

It has always been true, as a rule, that the woman who accomplished anything in the intellectual life must be either a celibate, or at most, the mother of but a child or two. The mother of a large family, unless she is extremely exceptional, cannot be expected to be productive in the intellectual life. She has not the time for original work, and still less for the filing process necessary for appropriate expression. There are rare exceptions, but they only prove the rule. One of the two forms of production apparently women must give up to devote themselves to the other. The nuns in the Middle Ages, in the retirement of their convents, gave themselves much more than we are likely to think possible, to literary and scientific production. Within the past year I have published sketches of two distinguished women of the tenth and twelfth centuries whose books show us the intellectual interests of the women of this time. Only that women were having opportunities for mental development

these would not have been written, and as they were written for women, it is evident that those interests were quite widely diffused. One of these two authors comes in what is sometimes called the darkest of the Dark Ages, the tenth century; the other was born in the eleventh. They serve to show how much more intense than we are likely to think was the interest of the time in things intellectual. Without printing and without any proper means of publication, somehow these women succeeded in making literary monuments that have outlasted the wreck and ruin of time, and that have been of sufficient interest to mankind to be preserved among vicissitudes which seemed surely destined to destroy them.

One of the two ladies was Roswitha, or Hrotswitha, a nun of Gandersheim, in what is now Hanover, who in the tenth century wrote a series of comedies in imitation of Terence, probably not meant to be played but to be read. She says in the preface that the reason for writing them was that so many religious were reading the indecent literature of classical Rome, with the excuse that it was necessary for the cultivation of style or for the completion of their education, that she wanted and had striven to write something moral and Christian to replace the older writings. That preface of itself ought to be enough to show us that in the nunneries along the Rhine, of which we know that there were many, there must have been a much more wide-

spread and ardent interest in literature, and, above all, in classic literature, than we have had any idea of until recently. Hrotswitha, to give her her Saxon name, was only a young woman of twenty-five when she wrote the series of stories and plays thus prefaced, and while her style, of course, does not compare with the classics, worse Latin has often been written by people who were sure that they knew more about Latinity than any nun of the obscure tenth century could possibly have known.

The other woman writer of about this time was Hildegarde, the abbess of a monastery along the Rhine, born at the end of the eleventh century, who wrote a text-book of medicine, which was the most important document in the history of medicine in this century. The nuns were the nurses and the hospital attendants and in the country places, to a great extent, the physicians of this time. In the cities there were regular practitioners of medicine, but the infirmarian of a monastery cared for the ailing monks and the people on the monastery estates when ill, and often they were many in number, and the infirmarian of a convent did the same thing for the sisters and for at least the women folk among the people of the neighborhood. It was in order to gather together and preserve the medical traditions of the monasteries and convents that Hildegarde, who afterwards came to be known as St. Hildegarde, wrote her volume on medicine. It has been recently

issued in the collection of old writings called "Migne's Patrologia," and has drawn many praises from historical critics for the amount of information which it contains. These two, Hroswitha and Hildegarde, furnish abundant evidence of the intellectual life of the convents of this old time and more than hint at how much has been lost that might have helped us to a larger knowledge of them.

With this in mind it will be easier to understand a preceding phase of the history of feminine education in Europe. The first nation that was converted to Christianity in a body, so that Christian ideas and ideals had a chance for assertion and application in the life of the people, was Ireland. Christianity when introduced into Rome met with the determined opposition of old paganism. After the migration of nations and the coming down of the barbarians upon the Roman Empire, there was little opportunity for Christianity to assert itself until after these Teutonic peoples had been lifted out of their barbarism to a higher plane of civilization. In Ireland, however, not only did conversion to Christianity convert the whole people, but it came to a people who possessed already a high degree of civilization and culture, a literature that we have been learning to think more and more of in recent years, many arts, and the development of science, in the form of medicine at least, to a high degree. The law and music, the language and the literature of

the early Irish all show us a highly cultivated people. When Christianity came to them, then, education became its watchword. Schools were opened everywhere on the island. Ireland became The Island of Saints and of Scholars, and literally thousands of students flocked from England and the mainland to these Irish schools.

The first and the greatest of these was that founded by St. Patrick himself at Armagh. During the century after his death there were probably at one time as many as 5,000 students at Armagh. Only next in importance to this great school of the Irish apostle was that of his great feminine co-worker, St. Brigid, who did for the women of Ireland what St. Patrick had been doing for the men. It is probable that there were 3,000 students at Kildare, Brigid's great school, at one time. It is curious to think that there should have been something like co-education 1,500 years ago, and, above all, in Ireland, but Kildare seems to have had a system not unlike that in vogue at many of our universities in the modern time. The male and female students were thoroughly segregated,—may I say this is not the last time in the world's history that segregation was the distinguishing trait of co-education,—but the teachers of the men at Kildare seem also to have lectured to the women. The men occupied an entirely subsidiary position, however; even the bishops of Kildare in Brigid's time were appointed on her recommendation. For centuries

afterwards the Abbess of Kildare, Brigid's successor, had the privilege of a commanding voice in the selection of the bishop. The school at Kildare was conducted mainly by and for women, though there were men in the neighboring monastery who taught both classes of pupils.

Perhaps the most interesting feature of the education of Kildare is that it was not concerned exclusively, nor even for the major part apparently, with book-learning. The book-learning of the Irish schools was celebrated. Down at Kildare, however, certain of the arts and crafts were cultivated with special success. Lace-making and the illumination of books were two of the favorite occupations of these students at Kildare in which marvellous success was achieved. The tradition of Irish lace-making which has maintained itself during all the centuries began, or at least, secured its first great prestige, in Brigid's time. Gerald the Welshman, sometimes spoken of as Giraldus Cambrensis, told of having seen during a journey in Ireland centuries after Brigid's time, but nearly a thousand years ago, a copy of the Scriptures that was wonderfully illuminated. He thought it the most beautiful book in the world. His description tallies very closely with that of the Book of Kells. Some have even ventured to suggest that he actually saw the Book of Kells at Kildare. This is extremely improbable, however, and the Book of Kells almost surely originated elsewhere. There

seems, however, to have been at Kildare some book nearly as beautiful as the Book of Kells, made there, and establishing peradventure the thoroughness of the artistic education given at Kildare at this time.

So much for feminine influence and education under Christianity. Most people are likely to know much more of the place of women in Greece and Rome than during Christian times. We are prone, however, to exaggerate the dependence of woman among both Latins and Greeks and to think that she had very few opportunities for intellectual development and almost none for expression of her personality and the exertion of her influence. Here, once more, as in many other phases of this subject we are, through ignorance, assuming conditions in the past that are quite unlike those which actually existed. Recently in the *Atlantic Monthly,* Mrs. Emily James Putnam, sometime the Dean of Barnard, in an article on "The Roman Lady," * has completely undermined usual notions with regard to the position of the Roman woman. The Roman matrons had rights all their own, and succeeded in asserting themselves in many ways. There was never any seclusion of the women in Rome and the Roman *matrona* at all times enjoyed personal freedom. entertained her husband's guests, had a voice in his affairs, managed his house and came and went as she pleased. Mrs. Putnam suggests that "in

* *Atlantic Monthly,* June, 1910.

early days she shared the labors and the dangers of the insecure life of a weak people among hostile neighbors. It may not be fanciful to say that the liberty of the Roman woman of classical times was the inherited reward of the prowess of a pioneer ancestress, in the same way as the social freedom of the American woman to-day comes to her from the brave Colonial house-mother, able to work and, when need was, to fight."

Indeed the more one studies social life in Rome the more clear does it become that conditions were very similar for women to what they are in this latest of the republics here in America. This will not be surprising if we but learn to realize that the circumstances of the development of Rome itself, the environment in which the women were placed resembled ours of the later time much more closely than we have had any idea of until recent years. The Italian historian, Ferrero, has read new lessons into Roman history for us by showing us the past in terms of the present.

The conditions that developed at Rome, as I have said, were very similar to those which developed in the modern American republic. Riches came, luxury arose, Eastern slaves came to do all the work in the household that could formerly be accomplished by the women, Greek hand-maidens particularly took every solicitude out of her hands, and then the Roman matron looked around for something to occupy herself with, and

it was not long before we have expressions from the men that would remind us of many things that have been said in the last generation or so. There is a well-known speech of Cato delivered in opposition to the repeal of the Oppian Law which forbade women to hold property, that is reported by Livy and sounds strangely modern. Mrs. Putnam talks of it very aptly, "as an expression of the ever recurrent uneasiness of the male in the presence of the insurgent female."

"'If, Romans,' said he, 'every individual among us had made it a rule to maintain the prerogative and authority of a husband with respect to his own wife, we should have less trouble with the whole sex. It was not without painful emotions of shame that I just now made my way into the forum through a crowd of women. Had I not been restrained by respect for the modesty and dignity of some individuals among them, I should have said to them, "What sort of practice is this, of running out into public, besetting the streets, and addressing other women's husbands? Could not each have made the same request to her husband at home? Are your blandishments more seductive in public than in private, and with other women's husbands than your own?"

"'Our ancestors thought it not proper that women should transact any, even private business, without a director. We, it seems, suffer them now to interfere in the management of state

affairs. Will you give the reins to their untractable nature and their uncontrolled passions? This is the smallest of the injunctions laid on them by usage or the laws, all of which women bear with impatience; they long for liberty, or rather for license. What will they not attempt if they win this victory? The moment they have arrived at an equality with men, they will become your superiors.' "

The social conditions which developed at Rome are indeed so strangely like those with which we are now familiar as to be quite startling. As a mere man I should hesitate to suggest this, since it refers particularly to feminine affairs and domestic concerns, but since it has been betrayed by one of the sex perhaps I may venture to quote it. Once more I turn to Mrs. Putnam for an apt expression of the conditions. She says:

" The Greeks, who, to be sure, had nothing in their dwellings that was not beautiful, had still supposed the great works of art were for public places. With the Romans began the private collection of chefs-d'œuvre in its most snobbish aspect. The parts played by the sexes in this enterprise sometimes showed the same division of labor that prevails very largely in a certain great nation of our own day that shall be nameless: the husband paid for the best art that money could buy, and the wife learned to talk about it and to entertain the artist. It is true that the Roman lady began also to improve her mind. She stud-

ied Greek, and hired Greèk masters to teach her history and philosophy. Ladies flocked to hear lectures on all sorts of subjects, originating the odd connection between scholarship and fashion which still persists."

This subject may be pursued with ever-increasing recognition of similarity between that time and our own. For instance, Mrs. Putnam says: "A woman of fashion, we are told, reckoned it among her ornaments if it were said of her that she was well read and a thinker, and that she wrote lyrics almost worthy of Sappho. She, too, must have her hired escort of teachers, and listen to them now and then, at table or while she was having her hair dressed,—at other times she was too busy. And often while the philosopher was discussing high ethical themes her maid would come in with a love-letter, and the argument must wait till it was answered.

"Nothing very important in the way of production resulted from all the lady's literary activity. The verses, if Sulpicia's they be, are the sole surviving evidence of creative effort among her kind; and, respectable as they are, they need not disturb Sappho's repose. It was indirectly that the Roman lady affected literature, since kinds began to be produced to her special taste; for it is hardly an accident that the *vers de société* should expand, and the novel originate, in periods when for the first time women were a large element in the reading public."

In our time it has been said, that one of the reasons why the young man does not marry is often that he is fearful of the superiority of the college-bred young woman. He knows that he himself has no more intelligence than is absolutely necessary for the proper conduct of life, and he fears that his "breaks" in grammar, in literature, in taste for art, in social things, may make him the laughing-stock of the educated woman. We would be reasonably sure, most of us, that at least this is the first time in the world's history that anything like this has happened. It is rather interesting, however, to read some of the reflections of the Roman satiric poets on the state of affairs that developed in Rome as a consequence of study and lectures and at least supposed scholarship becoming the fashion. "I hate the woman," says Juvenal, "who is always turning back to the grammatical rules of Palæmon and consulting them; the feminine antiquary who recalls verses unknown to me, and corrects the words of an unpolished friend which even a man would not observe. Let a husband be allowed to make a solecism in peace." I recommend the reading of Juvenal to the college young woman of the modern time, not only for its classic but for its social value.

Among the Greeks the position of women was quite different from what is usually supposed. It is only too often the custom to think that the Greek women, confined to a great degree to their

houses, sharing little in the public discussions, coming very slightly into public in any way, were more or less despised by the men and tolerated, but surely not much respected. The place of women in life at any time can be best judged from the position assigned them by the dramatic poets of any period. The larger the mind of the dramatic poet, the more of a genius he is, the more surely does his estimate expressed in literature represent life as he saw it. Ruskin pointed out that Shakespeare has no heroes and many heroines; that, while he has no men that stand in unmarred perfection of character, "there is scarcely a play that has not a perfect woman in it, steadfast in grave hope and errorless purpose; conceived in the highest heroic type of humanity." What is thus true of Shakespeare is just as true of the great dramatic poets of the Greeks. In practically all the extant plays of Æschylus, Sophocles and Euripides, women are the heroines. They are represented as nobler, braver, more capable of suffering, with a better appreciation of their ethical surroundings and the realities of life, than the men around them. As much as Antigone is superior to her quarrelsome brothers, as Alcestis rises above her selfish husband, as Tecmessa is superior to and would have saved Ajax if only he had permitted her, so everywhere do we find women occupying not a place of equality but a position of superiority.

These plays were written by men. Just as in

the case of Shakespeare they were written by men mainly to be witnessed by men, for while three-fourths of our audiences at theatres now are women, at least three-fourths of the audience in Shakespeare's time were men, and in the old Greek theatre the men largely exceeded the women in attendance. These were masculine pictures of the place of woman, painted not in empty compliment but with profoundest respect and deepest understanding. We honor these writers as the greatest in the history of literature because they saw life so clearly and so truly. Literature is only great when it mirrors life to the nail. What the Greek dramatists had done, Homer had done before them. His picture of the older Greek women shows us that they were on an absolute equality in their households with the men, that not only were they thoroughly respected and loved for themselves, but, to repeat Ruskin, they were looked up to as infallibly wise counsellors, as the best possible advisers to whom a man could go, provided they themselves were of high character and their hearts, as well as their intellects, were interested in the problems involved.

There are, of course, in all of the dramatists some wicked women. In the whole round of Shakespeare's characters there are only three wicked women who have degraded their womanhood among the principal figures. These are Lady Macbeth, Regan and Goneril. We have corresponding characters in the Greek dramatists.

Clytemnestra is the Lady Macbeth of Greek Tragedy. Euripides, the feminist as he has been called, has shown us, as feminists ever, more of the worst side of women than his greater predecessors Æschylus and Sophocles. He has exhibited the extent to which religious over-enthusiasm can carry women in the "Bacchæ," and was the first to introduce the sex problem. In general it may be said, as Ruskin says of Shakespeare, that when a Greek dramatist pictures wicked women "they are at once felt to be frightful exceptions to the ordinary laws of life; fatal in their influence also in proportion to the power for good which they had abandoned." Indeed tragedy, as we see it in the great tragic poets, might be defined as the failure on the part of a good woman to save the men who are nearest and dearest to her from the faults into which their characters impel them. All the great dramatists, ancient and modern, represent women once more in Ruskin's words as "infallibly faithful and wise counsellors—incorruptibly just and pure examples—strong always to sanctify, even when they cannot save."

How little there is in any question of evolution having brought new influence or higher place to woman may be very well realized from this position of women among the old Greeks. Gladstone has called attention to it very forcibly in his "Essay on the Place of Ancient Greece in the Providential Order," when he says, "Outside

LIBRARY OF THE UNIVERSITY OF CALIFORNIA

the pale of Christianity, it would be difficult to find a parallel in point of elevation to the Greek women of the heroic age." He has taken the place of woman as representing the criterion by which the civilization and the culture of a people at any time may be judged, though he does not at all think that one finds a constant upward tendency in history in this regard. He says:

"For when we are seeking to ascertain the measure of that conception which any given race has formed of our nature, there is, perhaps, no single test so effective, as the position which it assigns to woman. For as the law of force is the law of brute creation, so in proportion as he is under the yoke of that law does man approximate to the brute. And in proportion, on the other hand, as he has escaped from its dominion, is he ascending into the higher sphere of being and claiming relationship with Deity. But the emancipation and due ascendency of woman are not a mere fact, they are the emphatic assertion of a principle, and that principle is the dethronement of the law of force and the enthronement of other and higher laws in its place and its despite."

Of course, of the formal education of the women of Greece we know very little. We do know that they would not have been respected as they were, looked up to by their sons and their husbands, honored as the poets have shown them to be, put upon the stage as the heroines of the race, only that they had been intellectually as well as

morally the equals—nay, the superiors—of the men around them. We do not know much about the teaching of women before and during the classical period, but we can understand very well from what we know of them that they must have had good opportunities for education. Plato, of course, insists that women should be educated in every way exactly as the men. He mentions specifically gymnastics and horseback riding, and says that women should be trained in these as well as things intellectual, for they should have their bodies developed as well as their minds. His reason for demanding equal education is very interesting, because it is an anticipation of what is being said rather emphatically at the present time. He says: "If I am right nothing can be more foolish than our modern fashion of training men and women differently, whereby one-half of the power of the city is lost. For reflect if women are not to have the education of men some other must be found for them, and what other can we propose?" His idea evidently was that only one-half those who ought to be citizens were properly trained for civic duties if the education of women were neglected.

It is extremely interesting in the light of this to read some of Aristophanes' plays. Three of them, "Lysistrata," the "Thesmophoriazusæ," which has a simpler name "The Women's Festival," for it referred to the great feast of Thesmophoria in honor of Ceres and Proserpine, and

the "Ecclesiazusæ." This last title may be rendered a little freely "The Female Parliament," for in it women secure, by a little fraud, the right to vote and vote themselves into office as the main portion of the plot of the play. All three of these plays refer particularly to the question of women's rights, and though "The Women's Festival" was written as a satire on Euripides it is evident that only this subject was about as prominently before the people of Athens as the question of votes for women is in our time, Aristophanes would not have written these satiric comedies. The subjects of his plays are always the very latest actuality in Athens. Socrates was satirized in "The Clouds" within a few months of his death. "The War" was written while Athens was actually engaged in it, and "The Peace" was written within a few months after the signing of the treaty.

Votes for women must actually have been on the very centre of the carpet when Aristophanes wrote his "Ecclesiazusæ" or "Feminine Parliament." Lest it should be thought that I intrude myself in any way in trying to boil down for you the old satiric comedy, or that I am modernizing Aristophanes in order to adapt the ideas of this play more fully to conditions that are around us at the present time, I shall read to you the excellent condensation of it made by the Rev. W. Lucas Collins, M.A., in his "Aristophanes," in the series of "Ancient Classics for English Read-

ers," that scholarly introduction to the classic authors of which Mr. Collins is the editor. He says:

"The women have determined, under the leadership of a clever lady named Praxagora, to reform the constitution of Athens. For this purpose they will dress like men—beards included—and occupy the seats in the Pnyx, so as to be able to command a majority of votes in the next public assembly, the parliament of Athens. Praxagora is strongly of opinion with the modern Mrs. Poyser, that on the point of speaking, at all events, the women have great natural advantages over the men; that 'when they have anything to say they can mostly find words to say it in.' They hold a midnight meeting for the purpose of rehearsing their intended speeches and getting accustomed to their new clothes. Two or three of the most ambitious orators unfortunately break down at the very outset, much to their leader's disgust, by addressing the assembly as 'ladies' and swearing female oaths and using many other unparliamentary expressions quite unbefitting their masculine attire. Praxagora herself, however, makes a speech which is very generally admired. She complains of the mismanagement hitherto of public affairs, and asserts that the only hope of salvation for the state is to put the government into the hands of the women; arguing, like Lysistrata in the comedy of that name, that those who have so long managed the domestic establishment

successfully are best fitted to undertake the same duties on a larger scale. The women, too, are shown by their advocate to be highly conservative, and, therefore, safe guardians of the public interests:

> " They roast and boil after the good old fashion,
> They keep the holidays that were kept of old,
> They make their cheesecakes by the old receipts,
> They keep a private bottle like their mothers,
> They plague their husbands—as they always did.

Even in the management of a campaign, they will be found more prudent and more competent than the men:

> " Being mothers, they'll be chary of the blood
> Of their own sons, our soldiers; being mothers,
> They will take care their children do not starve
> When they're on service; and, for ways and means,
> Trust us, there's nothing cleverer than a woman:
> And as for diplomacy, they'll be hard indeed
> To cheat—they know too many tricks themselves.

Her speech is unanimously applauded; she is elected lady-president on the spot, by public acclamation, and the chorus of ladies march off towards the Pnyx to secure their places like the old gentlemen in 'The Wasps' ready for the daybreak.

" In the next scene, two of the husbands enter in great perplexity, one wrapped in his wife's dressing gown, and the other with only his under-

garment on and without his shoes. They both want to go to the assembly but cannot find their clothes. While they are wondering what in the world their wives can have done with them, and what is become of the ladies themselves, a third neighbor, Chremes, comes in. He has been to the assembly; but even he was too late to get the threepence which was allowed out of the public treasury to all who took their seat in good time, and which all Athenian citizens, if we may trust their satirist, were so ludicrously eager to secure. The place was quite full already, and of strange faces, too. And a handsome fair-faced youth (Praxagora in disguise, we are to understand) had got up, and amid the loud cheers of those unknown voters had proposed and carried a resolution, that the government of the state should be placed in the hands of a committee of ladies,—an experiment which had found favor also with others, chiefly because it was 'the only change which had not as yet been tried at Athens.' His two neighbors are somewhat confounded at his news, but congratulate themselves on the fact that the wives will now, at all events, have to see to the maintenance of the children, and that 'the gods sometimes bring good out of evil.'

"The women return, and get home as quickly as they can to change their costume so that the trick by which the passing of this new decree has been secured may not be detected. Praxagora succeeds in persuading her husband that she had

been sent for in a hurry to attend a sick neighbor, and only borrowed his coat to put on 'because the night was so cold' and his strong shoes and staff, in order that any evil-disposed person might take her for a man as she tramped along, and so not interfere with her. She at first affects not to have heard of the reform which has been just carried, but when her husband explains it, declares it will make Athens a paradise. Then she confesses to him that she has herself been chosen, in full assembly, 'Generalissima of the state.' She puts the question, however, just as we have all seen it put by a modern actress,—'will this house agree to it?' And if Praxagora was at all attractively got up, we may be sure it was carried by acclamation in the affirmative. *Then, in the first place, there shall be no more poverty; there shall be community of goods, and so there shall be no law suits, and no gambling and no informers.* (They promised more even than our suffragettes—if possible.) Moreover, there shall be community of wives,—and all the ugly wives shall have the first choice of husbands. So she goes off to her public duties, to see that these resolutions are carried out forthwith; the good citizen begging leave to follow close at her side, so that all who see him may say, 'What a fine fellow is our Generalissima's husband!'

"The scene changes to another street in Athens, where the citizens are bringing out all their property, to be carried into the market-place

and inventoried for the common stock. Citizen 'A' dances with delight as he marshals his dilapidated chattels into a mock procession—from the meal sieve, which he kisses, it looks so pretty with its powdered hair, to the iron pot which looks as black 'as if Lysimachus' (some well-known fop of the day, possibly present among the audience) 'had been boiling his hair dye in it.' This patriot, at least, has not much to lose, and hopes he may have something to gain, under these female communists.

"But his neighbor, who is better off, is in no such hurry. The Athenians, as he remarks, are always making new laws and abrogating them; what has been passed to-day very likely will be repealed to-morrow. Besides it is a good old national habit to take, not to give. He will wait a while before he gives in an inventory of his possessions. (One might think of an income tax law in the United States in the twentieth century.)

"But at this point comes the city-beadle (an appointment now held, of course, by a lady) with a summons to a banquet provided for all citizens out of the public funds: and amongst the items in the bill of fare is one dish whose name is composed of seventy-seven syllables—which Aristophanes gives us, but which the reader shall be spared. (It has been boiled down by the American schoolboy to just 'hash.') Citizen 'B' at once delivers it as his opinion that 'every

man of proper feeling should support the constitution to the utmost of his ability,' and hurries to take his place at the feast. There are some difficulties caused, very naturally by the new communistic regulations as to providing for the old and ugly women, but with these we need not deal. The piece ends with an invitation, issued by direction of Praxagora through her lady-chamberlain, to the public generally, spectators included, to join the national banquet which is to inaugurate the new order of things."

In a previous comedy Aristophanes had told of another interference of women in the political life of Athens that contains so many reminders of the modern time, and shows so definitely how old the new is, that it deserves a place here. Above all, the desertions from the cause of the women when they find that their political duties interfere with their home duties, and that they have to sacrifice many of the joys of life even though they are duties that may at times seem irksome enough,—children, household work, etc., —for these newer obligations with which they have so little sympathy, is especially interesting. Once more I prefer to take the Rev. Mr. Collins' summary of the play in order that it may be clear that Aristophanes' meaning is not being stretched for the purpose of making points with regard to present-day conditions. After all, Mr. Collins' little book was written very nearly thirty years ago, when very little of the present feministic

movement, at least in the form in which we are now familiar with it, had asserted itself.

"They determine, under the leading of the clever Lysistrata, wife to one of the magistrates, to take the question (of the ending of the war) into their own hands. They resolve upon a voluntary separation from their husbands—a practical divorce *a mensa et thoro*—until peace with Sparta shall be proclaimed. It is resolved that a body of the elder matrons shall seize the Acropolis and make themselves masters of the public treasury. These form one of the two choruses in the play, the other being composed of the old men of Athens. The latter proceed (with a good deal of comic difficulty, owing to the steepness of the ascent and their shortness of breath) to attack the Acropolis, armed with torches and fagots and pans of charcoal, with which they hope to smoke out the occupants. But the women have provided themselves with buckets of water, which they empty on the heads of their assailants, who soon retire discomfited to call the police. But the police are, in their turn, repulsed by these resolute insurgents, whom they do not exactly know how to deal with. At last a member of the public committee comes forward to parley, and a dialogue takes place between him and Lysistrata. 'Why,' he asks, 'have they thus taken possession of the citadel?' 'They have resolved henceforth to manage the public revenues themselves,' is the

reply, 'and not allow them to be applied to carrying on this ruinous war.' 'That is no business for women,' argues the magistrate. 'Why not?' says Lysistrata; 'the wives have long had the management of the private purses of the husbands, to the great advantage of both.' In short, the women have made up their minds to have their voice no longer ignored, as hitherto, in questions of peace and war. Their remonstrances have always been met with the taunt that 'war is the business of men;' and to any question they have ventured to ask their husbands on such points, the answer has always been the old cry—old as the days of Homer—'Go spin, you jade, go spin!' But they will put up with it no longer. As they have always had wit enough to clear the tangled threads in their work, so they have no doubt of settling all these difficulties and complications in international disputes, if it is left to them. But what concern, her opponent asks, can women have with war, who contribute nothing to its dangers and hardships? 'Contribute, indeed!' says the lady; 'we contribute the sons who carry it on.' And she throws down to her adversary her hood, her basket and her spindle, and bids him 'go home and card wool,'—it is all such old men are fit for; henceforth the proverb (of the men's making) shall be reversed,—'War shall be the care of the women.' The magistrate retires not having got the best of it, very naturally, in an encounter of words; and the chorus of elders raise the cry—

well known as a popular partisan cry at Athens, and sure to call forth a hearty laugh in such juxtaposition—that the women are designing to 'set up a tyranny!'

"But poor Lysistrata soon has her troubles. Her unworthy recruits are fast deserting her. They are going off to their husbands in the most sneaky manner—creeping out through the little hole under the citadel which led to the celebrated cave of Pan, and letting themselves down from the walls by ropes at the risk of breaking their necks. Those who are caught all have excellent excuses. One has some fleeces of fine Milesian wool at home which must be seen to,—she is sure the moths are eating them. Another has urgent occasion for the doctor; a third cannot sleep alone for fear of the owls—of which, as every one knows, there were really a great many at Athens. The husbands, too, are getting uncomfortable without their housekeepers; there is no one to cook their victuals; and one poor soul comes and humbly entreats his wife at least to come home and wash and dress the baby.

"It is becoming plain that either the war or the wives' resolution will soon give way, when there arrives an embassy from Sparta. They cannot stand this general strike of the wives. They are agreed already with their enemies, the Athenians, on one point—as to the women—that the old Greek comedian's proverb, which we have borrowed and translated freely, is true,—

"There is no living with 'em—or without 'em."

They are come to offer terms of peace. When two parties are already of one mind, as Lysistrata observes, they are not long in coming to an understanding. A treaty is made on the spot, with remarkably few preliminaries."

Whenever we have sufficient remains to illustrate the life of any period of history with reasonable completeness, we find women occupying a much more important place than is usually conceded to them. The trouble is that we assume that we know something about the past, because we have somewhere obtained a vague notion of it and then we fill in details in accordance with that preconceived notion. The general rule, unfortunately, is to make as little of the past as possible and to consider that, of course, they must have been very different from us, and surely far behind us in everything. The more one really knows of history, however, the less does one think this. We must not let our complacent self-satisfaction with our own generation disturb our proper appreciation of past generations, however. An English writer said not very long ago, and now that we have reviewed various periods in the history of feminine influence and of education, I think that you will recognize the justice of what he said, "It is too much the easy custom of the present self-admiring day—not a bit more self-satisfied, after all, than each day has been in its

turn—to hold the women of the past as something little better than dolls for their attainments, a little dearer than slaves for their position and despicably content therein." Nothing could well be less true than this.

What is apt to strike us, however, after a review of the phases of feminine education and influence such as I have sketched, is that there are undoubtedly times during which very little is heard of feminine influence and almost nothing at all of feminine education. There are periods on the other hand when these subjects are the very centre of human interest. This interest waxes to a certain climax and then apparently wanes. What is the reason for these waxings and wanings? Is there anything that we know about them that will help us to account for them? If women have once achieved a certain position and have once secured certain privileges in the matter of education, it might reasonably be expected that, barring some great cataclysm or political upheaval, that completely disrupted society, they would not abandon these hard-won rights and precious privileges, and so we should not have to be going through the storm and stress of another period of discussion, controversy, opposition with regard to woman's rights. How is it that rights once attained—and never unless after a struggle, for no matter how civilized a period or how cultured a people, they do not grant rights to any class unless forced to do so—

that these rights have afterwards been lost, or at least greatly diminished and partly forgotten?

In this we come upon one of the mysteries of history and of the life of man. How is it that men secure certain knowledge and then forget it—literally forget all about it—how is it that men make discoveries and then lose sight of them so that they have to be made over again; how is it that men even make useful inventions of all kinds and these are lost sight of and the invention has to be made over again in succeeding generations? How is it that the Suez Canal was opened at least once before our time and then allowed to fill up with sand, and we had to do the work all over again two generations ago? How is it that America was discovered at least twice, probably oftener, before Columbus' time, and yet his was a real discovery? We actually have Papal documents addressed to bishops in Greenland from Popes in the thirteenth century, mentioning missions on the mainland of America. There are traditions that seem to point beyond all doubt to the fact that the Irish monks were here in America in the eighth and ninth centuries. Those traditions come from three or four different sources. There was a reverence for the cross among the Indians in certain parts of the country. A tradition of white-robed priests who came from over the sea. The Norse name for America was Irland it Mikla, Ireland the Great,

that is, the island of the Irish, much larger than Ireland itself and lying beyond it in the seas.

How is it, indeed, that there are many discoveries and rediscoveries of the same principle in science? Heron's engine at Alexandria was an anticipation of the turbine principle in the application of steam. When we dug up surgical instruments at Pompeii we were surprised to find that they had the form of many instruments that we thought we had invented in our time. In glass-making, in iron-working, in all the arts and crafts precious secrets are discovered, then lost, then rediscovered, and this may even happen several times. We find no sign of a continuous progress, but recurring phases that represent ups and downs in man's interest in certain things and his achievements corresponding to the intensity of his interest. Such a thing as a regular progressive advance one finds nowhere in history. Nations do not maintain their power after they have achieved it. Just as soon as the struggle to maintain themselves is over, internal troubles of various kinds set disintegrating factors at work and it is not long before decadence can be noted and then the disappearance of the people or at least of its national prominence becomes inevitable. We shall not be surprised to find ups and downs in the history of feminine influence and education, for this is the rule of history. We have only been laboring under the false notion that definite progress was the rule because of over-

absorption in the evolution theory—but it is not.

There seems to be in this matter a certain check upon the occupation of woman with interests external to her household that would tempt her to occupy herself much with duties extraneous to the family life. After all, one thing is perfectly clear. Only women can be mothers. We have not succeeded even in getting the slightest possible hint of any method of continuing the race except by the ordinary process of maternity. Whatever of direct evolution the advocates of the theory of evolution have suggested as coming in humanity so that it may be the subject of observation, has been due in their minds to the lengthening of the period during which the young of the race are cared for. As we go up in the scale of life from the lowest to the highest, infancy—meaning by that the period during which the offspring is cared for by the parents—lengthens. In the very small beings there is none. As we ascend in the scale we find traces of parental care. Then comes occupation of the parents with their offspring from a few hours up to a day or two, and then finally months and years, until in the human race infancy has been gradually prolonged to twenty years. This is Herbert Spencer's observation and it is interesting and suggestive. A mother then especially, though also a father, must care for children, not alone for months before and after birth, but for a score of years.

Occupation with other things, though necessary, detracts from this care of children, and if exaggerated leads to the celibate condition or that approaching it, the limitation of families within narrow bounds. The mother of but two or three children may occupy herself with other things and, indeed, has to find other occupation of mind. At certain periods in the world's history a certain number of these women accumulate and the tendency to celibacy or to very limited maternity makes itself felt, and then this class of people usually fails to propagate enough of the species like themselves to take their places in the world. It is a matter of common comment at the present moment that if the women's colleges were to depend on the progeny of their graduates to fill the classes in succeeding years, the numbers at the schools not only would not increase but would constantly tend to decrease. Of course this same thing is true of the descendants of the male graduates of many of our Eastern universities, and I believe that attention has been particularly called to it with regard to our three oldest universities. Such are the risks of life and the fatalities incident to disease, even with our present improved hygienic conditions, that anything less than five or six children in a family will not prove sufficient eventually to replace the parents in their activities. When to small families is added the number of celibates consequent upon absorption in self-improvement, then the failure of the

cultured classes even to replace themselves becomes very manifest, and hence our dwindling native populations, if we take that word to mean the families that have been in the country for more than two generations.

Nature does not confide conditions in humanity entirely to man, however. This would be to leave mankind subject to certain whims and fashions and the caprices of times and people. There are many biological checks which maintain mankind in a certain equilibrium. A typical example of it is the regulation of the number of each sex born. In general the proportion of the sexes to one another maintains a ratio very near that of equality under ordinary natural conditions. This obtains in spite of the fact that man is so much more subject to accidents than woman, so much more likely to catch and succumb to disease and so much more likely to wear himself out prematurely as the result of his labors. The death-rate among women at all ages is lower than that of men, yet a constant, definite equilibrium of the sexes is maintained with accurate nicety. There is evidently some check existing in nature itself that prevents any disturbance of this fixed ratio.

Not only is nature able to maintain this, but in cases where, because of some serious disturbance of natural conditions, a decided inequality of the ratio occurs by accident, nature is able to restore conditions to the previous normal, without our being quite able to understand just how this is

accomplished. We do not know how sex is determined. There have been many explanations offered, but all of them have proved inadequate and most of them quite nugatory. In spite of our lack of knowledge there have been times in history when a striking manifestation of nature's power has occurred. For instance, after the Thirty Years' War in Germany the ratio between the sexes had been so much disturbed that, according to some historians, there were probably nearly twice as many women as men in existence in the Germanic countries. The men had been cut off by the war itself, by famines consequent upon it, by extreme and unusual efforts to support their families and by epidemic diseases in camps and campaigns. The disproportion was so great that a relaxation of the marriage laws was permitted for a time in certain of the countries and men were allowed to have two wives.

Under these conditions nature at once began to reassert herself, the number of male births was greatly increased and the disproportion between the sexes immediately began to lessen. At the end of scarcely more than three generations the normal equilibrium of the sexes was restored and there was about an equal number of men and women again. Here we have the effect of one of these curiously interesting biological checks upon man's foolish quarrelsomeness which might result in a too great disproportion of the sexes.

We shall not be surprised, then, if we find other

such biological checks and compensations exerting themselves. In recent years Sir Francis Galton, the cousin of Darwin, who is recognized as the best living authority in statistical biology, and Professor Karl Pearson, who has done more than any one else to bring out many curious and interesting but very important biological laws by the study of statistics, have insisted in their studies of the effect of the law of primogeniture, that when there are small families, the children are more likely to be nervous, oftener have an inclination to mental disease and have less resistive vitality against disèase in general than the average child of the larger families. There is a small but significant advantage in vitality that accrues to later children of a family. This is so contrary to the frequently expressed opinion that only the children of small families can be brought up properly to resist disease and have such advantages in their education and nutrition as to be of better health, that I should hesitate to quote it, only that it has behind it the authority of such distinguished scientists as Galton and Pearson. They are both conservative Englishmen, they have no theory of their own that they are supporting, they have no axe to grind in things social and political for the launching of the new theory, they are only making observations on the facts presented and the data that have been collected.

Here is another striking example of a check on certain tendencies in humanity that apparently

nature does not approve of, or to avoid personifying a process, we had better say are not according to nature's laws. The small family does not perpetuate itself. It has certain natural disadvantages that work against it. It gradually disappears and the races of larger families maintain themselves. We need not have had recourse to Galton's and Pearson's principle in this matter, for we see the results of the small family in present-day history. France is decreasing in population. Our own Puritan families are dying out. American families generally of more than three generations are not perpetuating themselves. The teeming fertility of the poor immigrants who come to us is, with immigration itself, supplying our increase in population. Our nation is, as a result, gradually becoming something very different from what our forefathers anticipated.

What has apparently happened, then, in the history of feminine education and influence is that, whenever women became occupied with such modes of education, or the cultivation of phases of feminine influence that took them out of their houses, away from family life and far from the hearthstone, the particular classes of women who thus became interested did not propagate themselves, or propagated themselves to such a limited degree that, after a time, their kind disappeared to a great extent. The domestic woman with tendencies to care much more for her maternal duties than for any extra-domiciliary successes

propagated herself, raised her children with her ideals, cultivated domesticity and consciously or unconsciously fostered the mother idea as the main feature of woman's life and her principal source not only of occupation, but of joy in the living, of consolation and of genuine accomplishment. The tendency, as can readily be seen in our own time, of the other class of woman is largely to foster, often unconsciously, but of course often consciously also, the opposite notions. She talks of the slavery of child-raising, the limitations of the home woman, the drudgery of domestic life, forgetting that life is work and that the only happiness in life is to have work that you want to do, whatever it may be, but all this talk has its inevitable effect upon all but the born mother woman, and the result is the fad for public occupation instead of domestic life.

It is easy to see what the result of the opposite opinion is. Every tendency of the intellectual woman so-called is to repress such natural instincts as lead to the propagation of the race and the continuance of her kind. Of course it will be said that intellectual women are quite willing to have one or two children. First, this is not true for a great many of them. Secondly, for those who have one or two children losses by death and failure to marry in the second generation, because of conscious or unconscious discouragements and the exaggeration of ideas with regard to the danger of maternity, lead often to a complete

suppression of the family in the second or third generation.

Apparently the rule of history is that there are four or five generations of women interested in intellectual things particularly, who follow one another in these periods of special feminine education and exertion of influence outside of the home. Then there comes a distinct decadence of the feminist movement, because of the gradual diminution in number of women who are interested in such things, and then, while there are always certain women who develop great intellectual abilities which require a larger stage than the home for their display, and while there are always some who find an intellectual career or rather make it, very little is heard of feminism and women's claims. They are satisfied to rule their husbands, to raise their children, to be saints to their sons and elder sisters to their daughters, and the feminine world has its simple joys and not much fuss about rights.

It may seem far-fetched thus to appeal to a biological check or a great underlying natural law in a matter of this kind, but in recent years biology has so often been appealed to to justify unsocial conditions that its true application needs to be pointed out. We have heard, for instance, much of the struggle for life and the competition that is supposed to be inevitable in nature, while all the time it has apparently been forgotten that there is no struggle for life within the species

except when there is some disturbance of the ordinary order of nature, as in times of famine, or when a mother is foraging for her children. On the contrary, mutual aid is the rule within the species and there is no animal small or large, from the ant to the elephant, that does not help its kind and has not certain wonderful instincts for helpfulness, the origin of which we do not know, but which are founded in nature itself. Man justifies inhumanity to man by the supposed struggle for life, while all the time nature teaches us the opposite law.

Nature's way is that of elimination. Her interest is the race. She cares very little for the individual and guards only her great purpose of securing the propagation of the race. Apparently such intense preoccupation with the intellectual life as provides opportunity for serious education, for literary work and for the exertion of diffuse influence in a community, does not make for the propagation of the race or its proper preservation. We can see this easily in the world around us, in the limited progeny of those who live the intellectual or selfish life to the exclusion of racial interests. This is opposed to nature's purpose and she proceeds to eliminate those who stand in her way. This is not done by any cataclysmic process but by a law of nature. Those involved in the influence disturbing to her purpose eliminate themselves. This is as true for indulgence in toxic substances that produce certain personal

momentary good feelings, as for the more deliberate avoidance of certain of nature's burdens which brings about a certain negative pleasure at least by lessening the amount of pain that has to be borne and trouble to be endured. To these pains and troubles nature has attached some of the best of the compensations of life. The domestic joys are properly man's highest source of unalloyed pleasure without remorse.

Our review of the phases of feminine education and influence would seem to show that there has occurred a series of cycles about three centuries apart in the history of the race, during which women become very much occupied with things external to their household. Such cycles are represented by our own period, that of the Renaissance in the sixteenth century, that of the university period in the thirteenth century, and then that at Charlemagne's court earlier, though the barbaric conditions following the migration of nations probably did not allow a natural expression of the tendencies at this time. Earlier in history, in the first century before Christ and just after and in the fourth century before Christ in Greece, there had been, as we have pointed out, such cycles. During the intervening centuries there is a negative phase in the movement, so that feminism, under which is understood woman's expression of herself outside of her home and the exertion of her influence apart from her family and immediate friends, is very little in

evidence. During these times the domestic woman reasserts herself. During the positive phases of the movement she continues to have her children, the feminists do not, or at least not to the same extent. They and their kind are gradually eliminated, at least to a great degree, and so the negative phase comes on.

This is not an argument and is not meant as such. It is meant to be a scientific reading of the meaning of certain phases of the history of the race as they can be studied. I would be the last in the world to think that I could influence present-day activities by any such indications of a great law in the history of the race that takes three centuries from phase to phase. After all, who cares for a law that does not affect our generation, but at most the third and fourth succeeding generations, and the manifestation of whose phenomena can only be recognized in three-century periods?

What I have tried to do is to point out just what are the cycles of feminine influence and education in the world's history, and then to work out the reasons why, quite contrary to what might be expected, these phases have not continued, but are interrupted by periods of utter decadence of feminine influence or interest in public life and education. Perhaps in our time we are going to change all that. That is the feeling that we are prone to have. Others may have made progress and forgotten about it, or

may have made mistakes and been eliminated for them, but we are so consciously active in our affairs that we cannot think of ourselves as likely to suffer the fate of our predecessors. There is much of that feeling abroad in the present day, there has always been much of that feeling abroad in every other day, for each succeeding generation in its turn is perfectly sure that what it is doing means more than ever before, though it can see very clearly the mistakes made by its predecessors. It is somewhat like our feeling towards other persons and their accomplishments in life as compared to our own. Most of us are quite sure that whatever we are doing is quite significant, though we can see plainly that what most of our friends are doing, or are trying to do, is altogether trivial and insignificant.

In recent years we have come to realize more and more how much history needs to be studied in the light of biology. The decadence of Greece was probably due, to a great extent, to the bringing back by Alexander's conquering soldiers of malaria from the Orient, and thus the vanquished proved the ruin of their conquerors. The great plagues of the olden time which sometimes carried away nearly one-half the human race in a single visitation, were due to insect pests of various kinds, which all unknown to men conveyed the disease and diffused it widely. It will not be easy always to read the lessons of biology in history aright. Whether I have done so for you

or not, in this matter of the history of feminism, I cannot tell. The story, however, has been interesting to work out, and I do not think that its conclusions have ever been presented to the public in quite this form before. They are now presented not with the idea that they should be accepted as absolute, but for the criticism and consideration of those who are most vitally interested and who want to know all that can be known about the conditions surrounding woman's influence in the world and her place for good in the history of the race.

THE CHURCH AND FEMININE EDUCATION

"It is your duty to see that your daughter loves study and work, securing this by the promise of rewards or some other means of emulation. Above all you must take care not to give her disgust for study for fear that this may continue as she grows older. Let her not learn in her childhood what she should unlearn later in life."—*Letter of St. Jerome to Leta, the wife of Toxolus, the son of St. Paula.*

"The sum of education is right training in the nursery. The soul of the child in his play should be trained to that sort of excellence in which, when he grows up to manhood, he will have to be perfected."—PLATO, *Laws* (Jowett), Vol. IV, p. 174. Scribner, 1902.

"The minds of children are most of all influenced by the training they receive at home."—POPE LEO XIII.

LIBRARY OF THE UNIVERSITY OF CALIFORNIA

THE CHURCH AND FEMININE EDUCATION *

LADY BACHELORS: I have had frequent occasions to address all sorts of bachelors on their graduation, of science and arts and letters and pedagogy, but this is my first opportunity to address ladies crowned, at least symbolically, with the laurel berries of the bachelorhood in art. We are apt to think of young ladies rather as masters of arts innumerable, and as needing no degree to attest their abilities. While I am glad, indeed, to address you as lady bachelors I do so with the fondest hope that you will all proceed to further degrees either academic or domestic and not remain in that nondescript class of bachelor-maids.

I should like to be able to tell you how much pleasure it gives me to have the privilege of addressing you on this Fiftieth Anniversary of the Foundation of St. Elizabeth's. There is an apt illustration of the Communion of Saints in your title as a college. Founded in honor of that noble, saintly American woman, Elizabeth Seton,

* The material for this address was gathered originally for the normal courses on the History of Education for many of the teaching sisterhoods in this country. In its present form it was the address to the graduates of St. Elizabeth's College, Convent Station, N. J., on the occasion of the celebration of the jubilee of the foundation of its teaching work.

and yet called particularly after that Saint Elizabeth whom the Mother of the Lord set out to visit as the first act of her Motherhood of the Church, there always rises in my mind besides, the thought of that other Saint Elizabeth whom the Germans delight to call the dear Saint Elizabeth, who, though she died when she was scarcely twenty-four, has left a name undying in the annals of helpfulness for others.

This St. Elizabeth, whose name I recall with special willingness now that I see you ready to go out to do your world's work, lived in the midst of what has been until quite recent years the despised Middle Ages, out of which as little good might be expected as out of Nazareth in the olden time, yet she so stamped her personality on the world of her day that now the after-time, neglectful, as a rule, of the individual, so careless even of the world's (supposed) great ones, will not willingly let her name die. She is still with us as a great living force. They read a sketch of her life, I have heard, at the meeting of the Neighborhood House in New York within the last few months, as an incentive to that devotion to the needy that characterized her. She was a woman who thought not at all of herself, but all of others. As a consequence, mankind in its better moods has never ceased to turn to her. Evidently the formula for being remembered is to forget yourself. I am sure, however, that that has been brought home to you so well during your

years at St. Elizabeth's that it would, indeed, be bringing coals to Newcastle for me to say anything about it in the few minutes I have to talk to you.

What I have chosen to say to you refers to that higher Catholic education for women of which you are now going out as the representatives. I do it all the more readily because, through the kindness of your beloved teachers, I have had the privilege of co-operating a little in that education, for I appreciate that privilege very much.

Apparently a good many people cherish the idea that the Catholic Church is opposed to feminine education, or at least to the higher education of women as we know it now, and that in the past her influence has been constantly and consistently exerted against any development of this phase of human accomplishment. In the liturgy of the Church women are usually spoken of as the devout female sex, and it is supposed that the one effort of the Church itself, the unerring purpose of ecclesiastical authorities, was to prevent women from becoming learned lest they should lose something of their devoutness. Apparently it is forgotten that some of the greatest devotees in the Church, the saintly women who were held up to the admiration and emulation of their sisters in the after-time, women like St. Catherine of Sienna, St. Angela Merici, St. Jane Frances De Chantal and, above all, St. Teresa,

were eminently intellectual women as well as models of devotion.

This same idea as to the Church deliberately fostering ignorance has been quite common in the writings of certain types of historians with regard to other departments of education, and those of us who are interested in the history of medicine have been rather surprised to be told that, because the Church wanted to keep people in readiness to look to Masses and prayers and relics and shrines for the cure of their ailments,—and, of course, pay for the privilege of taking advantage of these,—the development of medicine was discouraged, the people were kept in ignorance and all progress in scientific knowledge was hampered. It is, indeed, amusing to hear this when one knows that for seven centuries the greatest contributors to medical science have been the Papal physicians, deliberately called to Rome, many of them, because they were the great medical scientists of their day, and the Popes would have no others near. For centuries the Papal Medical School was the finest in the world for the original research done there, and Bologna at the height of its fame was in the Papal States.

With so many other presumptions with regard to the position of the Church towards education, it is not surprising that there should be a complete misunderstanding of her attitude toward feminine education, an absolute ignoring of the realities of the history of education, which show

exactly the opposite of anything like opposition to be true. I have had a good deal to do in laboring at least to correct many false ideas with regard to the history of education, and, above all, with what concerns supposed Church opposition to various phases of educational advance. I know no presumption of opposition on the part of the Church to education that is so groundless, however, as that which would insist that it is only now with what people are pleased to call the breaking up of Church influence generally, so that even the Catholic Church has to bow, though unwillingly, to the spirit of the times and to modern progress, that feminine education is receiving its due share of attention. Most people seem to be quite sure that the first serious development of opportunities for the higher education of women came in our time. They presume that never before has there been anything worth while talking about in this matter. Just inasmuch as they do they are completely perverting the realities of the history of education, which are in this matter particularly interesting and by no means lacking in detail.

Whenever there is any question of Church influence in education, or of the spirit of the Church with regard to education, those who wish to talk knowingly of the subject should turn to the period in which the Church was a predominant factor in human affairs throughout Europe. This is, as is well known, the thirteenth century. The

Pope who was on the throne at the beginning of this century, Innocent III, is famous in history for having set down kings from their thrones, dictated many modifications of political policy to the countries of Europe whenever secular governments were violating certain great principles of justice, and in general, was looked up to as the most powerful of rulers in temporal as well as in spiritual affairs. A typical example of the place occupied by the Church is to be seen when Philip Augustus of France repudiated his lawful wife to marry another. Pope Innocent set himself sternly against the injustice, and the proud French King, at the time one of the most powerful sovereigns of Europe, had to take back the neglected wife from the Scandinavian countries, the distance and weakness of whose relatives would seem to make it so easy for a determined monarch to put her aside. When King John in England violated the rights of his people, Innocent put the country under an Interdict, released John's subjects from their allegiance and promptly brought the shifty Plantagenet to terms. The Pope at the end of the century, the great Boniface VIII, was scarcely less assertive of the rights of the Church and of the Papacy than the first of the thirteenth-century Pontiffs. While he was not so successful as his great predecessor in maintaining his rights, the policy of the Church evidently had not changed. Most of the Popes of the interval wielded an immense influence for good

that was felt in every sphere of life in Europe in their time.

Now it is with regard to this period that it is fair to ask the question, What was the attitude of the Church toward education? Owing to her acknowledged supremacy in spiritual matters and the extension of the spiritual authority even over the temporal authorities whenever the essential principles of ethics or any question of morals was concerned, the Church could absolutely dictate the educational policy of Europe. Now, this is the century when the universities arose and received their most magnificent development. The great Lateran Council, held at the beginning of the century, required every bishop to establish professorships equivalent to what we now call a college in connection with his cathedral. The metropolitan archbishops were expected to develop university courses in connection with their colleges. Everywhere, then, in Europe universities arose, and there was the liveliest appreciation and the most ardent enthusiasm for education, so that not only were ample opportunities provided, but these were taken gloriously and the culture of modern Europe awoke and bloomed wonderfully.

Some idea of the extension of university opportunities can be judged from the fact that, according to the best and most conservative statistics available, there were more students at the universities of Oxford and Cambridge to the population of the England of that day, than there are

to the population of even such an educationally well provided city as Greater New York in the present year of grace 1910. This seems astounding to our modern ideas, but it is absolutely true if there is any truth in history. The statistics are provided by men who are not at all favorable to Catholic education or the Church's influence for education. At this same time there were probably more than 15,000 students at the University of Bologna, and almost beyond a doubt 20,000 at the University of Paris. We have not reached such figures for university attendance again, even down to the present. Students came from all over the world to these universities, but more than twenty other universities were founded throughout Europe in this century. The population was very scanty compared to what it is at the present time; there were probably not more than 25,000,000 of people on the whole continent. England had less than 3,000,000 of people and, as we know very well by the census made before the coming of the Armada, had only slightly more than 4,000,000 even in Elizabeth's time, some two centuries later.

Here is abundant evidence of the attitude of the Church towards education. Now comes the question for us, What about feminine education at the time of this great new awakening of educational purpose throughout Europe? If we can find no trace of it, then are we justified in saying that if the Church did not oppose, at least she did not

favor the higher education for women. Let us see what we find. The first university in our modern sense of the word came into existence down at Salerno around the great medical school which had existed there for several centuries. Probably the most interesting feature of the teaching at Salerno is the fact that the department of the diseases of women in the great medical school was in charge of women professors for several centuries, and we have the books they wrote on this subject, and know much of the position they occupied. The most distinguished of them, Trotula, left us a text-book on her subject which contained many interesting details of the medicine of the period, and we know of her that she was the wife of one professor of medicine at Salerno and the mother of another. She was the foundress of what was called the school of Salernitan women physicians, using the word school in the same sense in which it is employed when we talk of a school of painters.

This is all the more interesting because the University of Salerno was mainly under monastic influence. Originally the schools in connection with the school of medicine were founded from the great Benedictine monastery of Monte Cassino not far away. The first great teacher of medicine at Salerno, Constantine Africanus, whose influence was dominant in his own time and continued afterwards through his writings, became a Benedictine monk in his early middle age. The

preparatory schools for the medical courses at Salerno were largely in the hands of the Benedictines. The university itself was under the influence of the Archbishop of Salerno more than any other, and the one who did most for it, the great Alphanus, had been a Benedictine monk. Ordinarily this would be presumed to preclude any possibility of the development of a great phase of education for women, and especially professional education for women at the University of Salerno. Just the contrary happened. The wise monks, who knew human life and appreciated its difficulties, recognized the necessity, or at least the advisability, for women as medical attendants on women and children, and so the first great modern school of medicine, mainly under monastic influence, had the department of women's diseases in the hands of women themselves.

In Naples women were allowed to practise medicine, and we have some of the licenses which show the formal permission granted by the government in this matter. An almost exactly similar state of affairs to that thus seen at Salerno developed at Bologna, only there the university was founded round the law school, and the first women students were in that school. When Irnerius established his great lectureship of Roman Law at Bologna, to which students were attracted from all over Europe, he seems to have seen no objection to allow women to attend his courses, and we have the names of his daughter

and several other women who reached distinction in the law school. As the other departments of the University of Bologna developed we find women as students and teachers in these. One of the assistants to the first great professor of anatomy at Bologna, Mondino, whose text-book of anatomy was used in the schools for two centuries after this time, was a young woman, Alessandra Giliani. It is to her that we owe an early method for the injection of bodies in such a way as to preserve them, and she also varnished and colored them so that the deterrent work of dissection would not have to be carried on to such an extent as before, yet the actual human tissues might be used for demonstrating purposes.

As the result of the traditions in feminine education thus established women continued to enjoy abundant opportunities at the universities of Italy, and there is not a single century since the thirteenth when there have not been some distinguished women professors at the Italian universities. Nearly five centuries after the youthful assistant in anatomy of whom we have spoken, whose invention meant so much for making the study of medicine less deterrent and dangerous, came Madame Manzolini, who invented the method of making wax models of human tissues so that these might be studied for anatomical purposes. Made in the natural colors, these were eminently helpful. In the meantime many women professors of many subjects had come and gone at

the Italian universities. In the thirteenth century there was a great teacher of mathematics who was so young and handsome that, in order not to disturb the minds of her students, she lectured from behind a curtain. It is evident that the educated women of the Middle Ages could be as modest as they were intelligent and thoughtful of others, quite as much as if they had devoted their lives to gentle charity and not to the higher education. Women physicians, educators, mathematicians, professors of literature, astronomers, all these are to be found at the universities of Italy while the Church and the ecclesiastics were the dominating influences in these universities.

Unfortunately the spread of this feminine educational movement from Italy to the west of Europe was disturbed by the Héloïse and Abélard incident at the University of Paris, and as all the western universities owe their origin to Paris, they took the tradition created there after Abélard's time, that women should not be allowed to enter the university. When, however, three centuries later, the Renaissance brought in the new learning, the schools of humanism independent of the universities admitted women on absolute terms of equality with men, and some of the women became the distinguished scholars of the time. The Church's influence is plainly to be seen in this, and the women took part in plays given in Greek and classic Latin before the cardinals and prominent ecclesiastics, and everywhere the feel-

ing developed that, if women wanted to have the higher education of the humanities or, as it was then called, the New Learning, they should have it. This feminine educational movement spread all over Europe. Anne of Bretagne organized a school at the French Court for the women of the court, and such women as Mary Queen of Scots, Margaret of Navarre, Renée of Anjou, Louise La Cordiére are a few of the French women of the Renaissance who attained distinction for broad culture and education at this time.

Spain, too, had its women of the Renaissance. One of the first of them was Isabella of Castile, whose assistance to Columbus was no mere accident, nor due so much to personal influence exerted on her, as to her own broad interest in the things of the mind in her time. Her daughter Catherine, who became Queen of England, was deeply educated, while *her* daughter, Queen Mary of England, knew the classics and especially Latin very well. During her time in England many of the nobility of the higher classes were distinguished for education. Lady Jane Grey preferred to study Greek to going to balls and routs, and sacrificed hunting parties for her lessons under Roger Ascham, in the great Greek authors. Queen Elizabeth knew Greek and Latin very well. The famous Countess of Arundell at this time was a distinguished scholar. Margaret More is a bright example of opportunities for the higher education given and taken in the lower classes of

the nobility of the England of her time. One thing we can be sure of in the England of that time, if the Queen and the highest nobility were interested in education and devoted their time to it so sedulously and successfully, then without doubt those beneath them in rank did so likewise. The upper classes are not alone imitated in things unworthy, but also in what is best if they only provide the good example.

To any one who knows the history of the Church, however, these incidents in feminine education will not be surprising. Every time, as a rule, that there has been a great new awakening in education, women, too, have demanded the right to have their share in it, and the Church, far from discouraging, has always helped to provide educational opportunities. When in the ninth century Charlemagne reorganized the education of Europe, or, at least, reinstituted it for his people, the women of the Palace had their opportunities to attend the Palace school as well as the men. That Palace school was a very wonderful travelling university, wandering wherever the Court went. It was at Aix, it was probably at Paris for a time; when Charlemagne went down to Italy it went with him and seems to have held some sessions even while he was in Rome; there is a tradition of its existence while he stayed one winter in Verona. Though the teachers in it were monks, for Charlemagne and Alfred, the great, broad-minded rulers, who did so much for

their people, had no illusions about the high place that the monks held in life in their time, women were taught at the schools as well as men. Charlemagne and Alfred were in the best possible position to know who were the best teachers in their time, and they turned with confidence to the monks. People generally, and, above all, their great rulers, knew nothing of the condemnation of the monks in the Dark Ages which came a thousand years after their time, from people who knew nothing about them and who had even less sympathy with them. They both knew them and sympathized with all they were doing, therefore their cordial encouragement of them. Their attitude was eminently justified by the fact that the monks were broad enough, in spite of their monastic habits and their supposed lack of appreciation for women, to take up to a great extent even the teaching of women. There are letters from the women of the court of Charlemagne written to Alcuin and to other teachers of the time, which show how interested were the women in the school work.

This is not surprising if we recall that, when Benedict founded the monks of the west, who were to provide the homes where culture was to be maintained and the classics preserved for us and education gradually diffused, his sister St. Scholastica did the same thing for the women as her brother was doing for the men. Any one who knows the story of the Benedictine convents for

women and the books there produced, plays, stories, even works on medicine and other sciences, will realize how much was accomplished for the higher education of women in these institutions in unpromising times. The women who wanted to follow the intellectual life were given the opportunity and many of them did excellent work. Within the last year I have written and published sketches of the lives of St. Hildegarde, who wrote books on medicine in the twelfth century, and of Hroswitha, the nun of Gandersheim, who wrote Latin comedies in imitation of Terence in the tenth century. These serious literary and scientific writings by women in what is usually presumed to be the darkest period of the so-called Dark Ages, and preserved for us out of the wreck and ruin that came down on nearly everything produced in those times, shows us very clearly how much more than we have been accustomed to think these women of the Middle Ages were interested in the intellectual life. Books are written only when there are readers and appreciation for them, and the interest of contemporaries and the hope of future interest as an incentive.

Of course, even before the foundation of the Benedictines we have a great living example of the encouragement of the Church for the higher education of women. It came at a time and under circumstances that furnish abundant evidence of how much the Church appreciates and is ready to encourage education and how precious she realizes

it is for her children. When the first nation was converted as a whole to Christianity, when the Irish people came over under the Apostolic Patrick's wonderful missionary zeal, the first thing that was done in this first Christian nation was to found schools. Ireland became the Island of Saints and of Scholars. While the barbarians had overrun Europe and destroyed the schools there, Ireland became the home of the best teachers in the world and men flocked to her from all over Europe.

These schools, however, were not reserved for the men, but abundant opportunities were also afforded women for scholarship and for culture of every kind. Only second in importance to St. Patrick's great school at Armagh during the first century in the history of Ireland as a Christian nation was St. Brigid's school at Kildare. We know from Giraldus Cambrensis, now better known as Gerald the Welshman, that, in his travels in Ireland centuries afterwards, but before the destruction of Kildare, he saw many wonderful evidences of the intellectual life of that institution. Above all, he saw a famous copy of the Holy Scripture so beautifully illuminated that he thought it the finest book in the world. His description would show us that if this copy of the Scriptures which Gerald saw was not the book of Kells as some have ventured to suggest, it was at least a copy not unlike that famous illuminated volume which is, perhaps, the most

beautiful book that ever came from the hand of man. The arts and the crafts evidently were studied and practised as well as book-learning at Kildare, and Brigid's influence brought to her at her college of Kildare, literally thousands of the daughters of the nobility of Ireland, of England and of portions of the Continent, attracted by her sanctity and her scholarship and the wonderful intellectual and artistic work that was being accomplished there.

With these facts in mind it is easy to see that the Church, far from opposing in any way the higher education for women, has not only encouraged but actually patronized it whenever there is a demand for it on the part of any generation in history. Feminine education comes and goes, so though in less markedly cyclical fashion does masculine education. Just what the law behind these cycles is we do not know as yet. One thing is sure, now that another cycle of interest has come to feminine education in the world, the Church is not only willing but anxious to give her children the benefit of it, and the growth of the higher education among Catholics for Catholic young women in America in the last decade is the best evidence of this. Our teaching Sisterhoods in this country have nobly lifted themselves up to the occasion demanded, and we may well be proud of our Catholic colleges for women. Personally I know what is being done at some half a dozen of them, and I have no hesitation

in saying that they are giving a better, solider, though perhaps, a less showy education than their secular rivals. Of your work at St. Elizabeth's I have had such personal information as makes me realize how thorough are the efforts to provide every possible opportunity for higher feminine education and how successful they are.

Only less absurd than the notion that the Church is in any way opposed to feminine education is the thought that seems to be in many people's minds in our day, that the Church would prefer to keep woman in the background and does not want her to do great influential things when those are demanded of her. The feeling seems to be that only modern evolution has brought such opportunities for women to exert the precious humanitarian influence that is sometimes possible for her. How much those who talk thus forget the history of the Church if they ever knew it, but also of feminine influence in the world, is very clear from even a short résumé of feminine achievements in Christian times. Whenever there has been a great movement in the Church that meant much for the men and women of a time, beside the man who initiated it, if she was not, indeed, the initiator herself, stood a great woman only a little less significant in influence, as a rule, and sometimes even greater than he. In the conversion of the first people to Christianity, beside St. Patrick stood St. Brigid. In the foundation of the monks of the west that

great institution that meant so much for the Church and for Europe, beside St. Benedict stood St. Scholastica, his sister, doing and organizing for the women of her time and succeeding generations, what her brother did for the men. When, in the newer dispensation of the foundation of the Mendicant Religious Orders, St. Francis came to bring a great new message to the world, beside him and only a little less influential than he in his lifetime, and saving his work for its genuine mission after his death, came St. Clare. When the tide of the religious revolt spreading down from Germany, was pushed back in Spain, beside St. Teresa, for here the greater protagonist of the movement was a woman, stood St. John of God. When St. Francis De Sales came to do his great work for education and for the uplift of the better classes, beside him and scarcely less influential than he in every way, was St. Jane Frances De Chantal. In the great new organization of modern charity under St. Vincent De Paul beside that wonderful friend of the poor whose work is the underlying impulse of all modern organized charity in the best sense of that much abused term, stood the modest and humble but strongly beautiful woman, the foundress of the Sisters of Charity, Madame Le Gras. Even in the nineteenth century with the newer organizations of education demanded by changed conditions, when such foundations as those of the Sacred Heart and of the Sisters of Notre Dame

came into existence, men and women co-operated in these works and only now are we realizing to the full the sanctity of such women as Blessed Madame Barat or the Venerable Julie Billiart and their adviser and friend, Father Varin, the Jesuit.

Nor was it only in connection with work accomplished by men or initiated by them that we find women doing great work. It must not be forgotten that many of the religious orders which are accomplishing fine work in every line of helpful endeavor, often hundreds of years after their foundations, in conditions very different from those in which they were established, originated in the minds of women and had their constitutions worked out practically without any help from men, and often, indeed, against the judgment of men. The world of our day is not prone to appreciate at its proper worth these great works of women who took for an aim in life unselfish purpose, rather than any more personal ambition. It must not be forgotten, then, that the first settlement worker of modern times, the dear St. Elizabeth of Hungary, is one of the great influences that will never die. The cathedral erected in her honor within a few years after her death is the most beautiful monument to woman anywhere in the world. What St. Elizabeth was to the thirteenth century, St. Catherine of Sienna was to the fourteenth. Without her influence and her place in it, it would be impossible to under-

stand the history of that century, though sometimes history has been written without a mention of her. In the fifteenth century came Joan of Arc, in the sixteenth and seventeenth some of the brave women who founded great humanitarian works in connection with the early missionaries in this country. Everywhere in history you find Catholic women accomplishing great things.

After all, this is only what is to be anticipated from what is symbolized and prefigured in the story of the foundation of the Church. When the Son of God came as the Redeemer of Mankind, beside Him in His life and mission, the highest of mortals in the influence that she was to have over all succeeding generations, stood the Woman, whose seed was to crush the serpent's head, the Mother from whom He had chosen to take His human flesh. The Mother of the Messiah became the Mother of the infant Church and the Mother of all Christians ever since. Surely this was given for a sign not to be contradicted in the after-time. As the Mother beside the Son, so was woman ever to stand as the most precious influence in the work of Christianity. As the great scheme of redemption was dependent on her consent, so ever was woman to be God's greatest auxiliary in the accomplishment of good for humanity.

You can understand, then, that when I say to you graduates of St. Elizabeth's, go out and fulfil your missions, whatever they may be, I mean

that you shall be ready to take up any work for which your education and your training fit you, and God grant it may bring you such opportunities for good as have been exemplified in the lives of so many Catholic women all down the ages. There is nothing more than this that I could say to you. Our mother Church, far from wanting to keep women in the background, has always accorded them full and equal rights in their own domains and, above all, has given them absolute independence in the religious organizations as far as that is compatible with effective co-operation in good work. You may be sure, then, that any work that you find to do worthy of you, and that you take up whole-heartedly, will have not only her blessing but you shall find every encouragement. The glorious examples of the Catholic women of the past, educated, intellectual women, some of whom like St. Teresa, St. Catherine of Sienna, St. Jane Frances De Chantal and St. Brigid are high among the greatest intellectual women that ever lived, will be your guiding stars, and if you keep them in mind you shall not go wrong. Remember that we expect much and we have a right to expect much of the women graduates of our Catholic Women's Colleges—you have a great mission, you have put your hand to the plow, do not look back,—onward and upward. God's in his world and all's well. Only our co-operation is needed.

ORIGINS IN AMERICAN EDUCATION

"Libenter homines id quod volunt credunt."—CÆSAR, *Bell. Gall.*, iii: 8.
[Men believe readily what they want to.]

"Great additions have of late been made to our knowledge of the past; the long conspiracy against the revelation of truth has gradually given away. . . . It has become impossible for the historical writer of the present age to trust without reserve even to the most respected secondary authorities. The honest student finds himself continually deserted, retarded, misled by the classics of historical literature."—*Preface of "Cambridge Modern History."*

ORIGINS IN AMERICAN EDUCATION *

HERE in the United States we have been somewhat amazingly ignorant of our brother Americans of Mexico and of South America. Our ignorance has been so complete as to have the usual result of quite intolerant bigotry with regard to the significance of what was being done in these Spanish-American countries. A distinguished ex-president of one of our American universities said in his autobiography, that a favorite maxim of his for his own guidance was, "The man I don't like is the man I don't know." If we only know enough about people, we always find out quite enough about them that is admirable to make us like them. Whenever we are tempted to conclude that somebody is hopelessly insignificant then what we need to correct is our judgment by better knowledge of them. For most Americans, for we have arrogated to ourselves the title of Americans to the exclusion of any possible share

* The material for this address was collected for a lecture on the History of Education for the Sisters of Charity of Mount St. Vincent's, New York, and the Sacred Heart Academy, Kenwood, Albany, N. Y. Subsequently it was developed for an address to the parochial school teachers of New Orleans and for the summer normal courses of St. Mary's College, South Bend, Ind., and St. Mary's College, Monroe, Mich. Very nearly in its present form the address was delivered in a course at Boston College in the spring of 1910.

in it of our South American brethren, Spanish America has been so hopelessly backward, so out of all comparison with ourselves, as to be quite undeserving of our notice unless it be for profound deprecation.

Fortunately for us in recent years our knowledge of Spanish America has become larger and deeper and more genuine, and as a consequence there has been less assumption of knowledge founded on ignorance. Every gain in knowledge of Spanish America has raised Spanish America and her peoples in our estimation. Not long since at a public dinner the president of a great American university said, "We have only just discovered Spanish America." This is literally true. We have thought that we knew much about it, and that that much showed us how little deserving of our attention was Spanish America, while all the while a precious mine of information with regard to the beginnings of the history of education, of literature, of culture, nay, even of physical science on this continent, remained to be studied in these countries and not our own. Our scholars are now engaged in bringing together the materials out of which a real history of Spanish America can be constructed for their fellow-Americans of the North, and their surprise when it is placed before them is likely to be supreme. In the meantime there are some phases of this information that, I think, it will be interesting to bring together for you.

Josh Billings, writing as "Uncle Esek" in the *Century Magazine* some twenty-five years ago, made use of an expression which deserves to be frequently recalled. He said: "It is not so much the ignorance of mankind that makes them ridiculous as the knowin' so many things that ain't so." We have a very typical illustration of the wisdom of this fine old saw in the history of education here in America as it is being developed by scholarly historical research at the present time. The consultation of original documents and of first-hand authorities in the history of Spanish-American education has fairly worked a revolution in the ideas formerly held on this subject. The new developments bring out very forcibly how supremely necessary it is to know something definite about a subject before writing about it, and yet how many intelligent and supposedly educated men continue to talk about things with an assumption of knowledge when they know nothing at all about them.

Catholics are supposed by the generality of Americans to have come late into the field of education in this country. Whatever there is of education on this continent is ordinarily supposed to be due entirely to the efforts of what has been called the Anglo-Saxon element here. At last, however, knowledge is growing of what the Catholic Spaniards did for education in America and as a consequence the face of the history of education is being completely changed. Every ad-

vance in history in recent years has made for the advantage of the Catholic Church. Modern historical methods insist on the consultation of original documents and give very little weight to the quotation of second-hand authorities. We are getting at enduring history as far as that is possible, and the real position of the Church is coming to light. In no portion of human accomplishment is the modification of history more striking than with regard to education. There was much more education in the past centuries than we have thought and the Catholic Church was always an important factor in it. Nowhere is this truth more striking than with regard to education here in America in the Spanish-American countries.

Professor Edward Gaylord Bourne, professor of history at Yale University, wrote the volume on Spain in America which constitutes the third volume of "The American Nation," a history of this country in twenty-seven volumes edited by Professor Albert Bushnell Hart, who holds the chair of history at Harvard University. Professor Bourne has no illusions with regard to the relative value of Anglo-Saxon and Spanish education in this country. In his chapter on "The Transmission of European Culture" he says: "Early in the eighteenth century the Lima University (Lima, Peru) counted nearly two thousand students and numbered about one hundred and eighty doctors (in its faculty) in theology, civil and canon law, medicine and the arts." Ulloa

reports that " the university makes a stately appearance from without and its inside is decorated with suitable ornaments." There were chairs of all the sciences and " some of the professors have, notwithstanding the vast distance, gained the applause of the literati of Europe." " The coming of the Jesuits contributed much to the real educational work in America. They established colleges, one of which, the little Jesuit college at Juli, on Lake Titicaca, became a seat of genuine learning." (Bourne.)

He does not hesitate to emphasize the contrast between Spanish America and English America with regard to education and culture, and the most interesting feature of his comparison is that Spanish America surpassed the North completely and anticipated by nearly two centuries some of the progress that we are so proud of in the nineteenth century. What a startling paragraph, for instance, is the following for those who have been accustomed to make little of the Church's interest in education and to attribute the backwardness of South America, as they presumed they knew it, to the presence of the Church and her influence there.

" Not all the institutions of learning founded in Mexico in the sixteenth century can be enumerated here, but it is not too much to say that in number, range of studies and standard of attainments by the officers they surpassed anything existing in English America until the nineteenth

century. Mexican scholars made distinguished achievements in some branches of science, particularly medicine and surgery, but pre-eminently linguistics, history and anthropology. Dictionaries and grammars of the native languages and histories of the Mexican institutions are an imposing proof of their scholarly devotion and intellectual activity. Conspicuous are Toribio de Motolinia's 'Historia de las Indias de Nueva España,' Duran's 'Historia de las Indias de Nueva España,' but most important of all Sahagun's great work on Mexican life and religion."

Indeed, it is with regard to science in various forms that one finds the most surprising contributions from these old-time scholars. While the English in America were paying practically no attention to science, the Spaniards were deeply interested in it. Dr. Chança, a physician who had been for several years physician-in-ordinary to the King and Queen and was looked upon as one of the leaders of his profession in Spain, joined Columbus' second expedition in order to make scientific notes. The little volume that he issued as the report of this scientific excursion is a valuable contribution to the science of the time and furnishes precious information with regard to Indian medicine, Indian customs, their knowledge of botany and of metals, certain phases of zoology, and the like, that show how wide was the interest in science of this Spanish physician of over four hundred years ago.

LIBRARY OF THE UNIVERSITY OF CALIFORNIA

After reading paragraphs such as Professor Bourne has written with regard to education in Spanish America, how amusing it is to reflect that one of the principal arguments against the Catholic Church has been that she keeps nations backward and unprogressive and uneducated—and the South American countries have been held up derisively and conclusively as horrible examples of this. Even we Catholics have been prone to take on an apologetic mood with regard to them. The teaching of history in English-speaking countries has been so untrue to the realities that we have accepted the impression that the Spanish-American countries were far behind in all the ways that were claimed. Now we find that instead of presenting grounds for apology they are triumphant examples of how soon and how energetically the Church gets to work at the great problems of education wherever she gains a position of authority or even a foothold of influence. Instead of needing to be ashamed of them, as we have perhaps ignorantly been, there is a reason to be deservedly proud of them. Their education far outstripped our own in all the centuries down to the nineteenth, and the culture of the Spanish-Americans, quite a different thing from education, is deeper than ours even at the present time. It is hard for North America to permit herself to be persuaded of this, but there is no doubt of its absolute truth.

It is only since the days of steam that the Eng-

lish-speaking races in America have come to possess a certain material progress above that of the Spanish-American countries. Bourne says:

"If we compare Spanish America with the United States a hundred years ago we must recognize that while in the North there was a sounder body politic, a purer social life and a more general dissemination of elementary education, yet in Spanish America there were both vastly greater wealth and greater poverty, more imposing monuments of civilization, such as public buildings, institutions of learning and hospitals, more populous and richer cities, a higher attainment in certain branches of science. No one can read Humboldt's account of the City of Mexico and its establishments for the promotion of science and the fine arts without realizing that whatever may be the superiorities of the United States over Mexico in these respects, they have been mostly the gains of the age of steam."

While we are prone to think that a republican form of government is the great foster-mother of progress and that whatever development may have come in South American countries has been the result of the foundation of the South American republics, Professor Bourne is not of that opinion and is inclined to think that if the Spanish Colonial Government could have been maintained at its best until the coming of the age of steam or well on into the nineteenth century, then the South American republics would have been serious

rivals of the United States and have been kept from being so hampered as they were by their internal political dissensions. His paragraph on this matter is so contradictory of ordinary impressions, here in the United States particularly, that it seems worth while calling attention to it because it contains that most precious of suggestions, a thought that is entirely different from any that most people have had before. He says:

"During the first half-century after the application of steam to transportation Mexico weltered in domestic turmoils arising out of the crash of the old régime. If the rule of Spain could have lasted half a century longer, being progressively as it was during the reign of Charles III; if a succession of such viceroys as Revilla Gigedo, in Mexico, and De Croix and De Taboaday Lemos, in Peru, could have borne sway in America until railroads could have been built, intercolonial intercourse ramified and a distinctly Spanish-American spirit developed, a great Spanish-American federal state might possibly have been created, capable of self-defense against Europe, and inviting co-operation rather than aggression from the neighbor in the North."

Lima was the great centre for education in South America, and Mexico, in Spanish North America, was not far at all behind. The tracing of the steps of the development of education in Mexico emphasizes especially the difference between the Spaniards and the Englishmen in their

relation to the Indian. Bishop Zumaraga wanted a college for Indians in his bishopric, and it was because of this beneficent purpose that the first institution for higher education in the New World was founded as early as 1535. At that time the need for education for the whites was not felt so much, since only adults as a rule were in the colony, the number of children and growing youths being as yet very small. Accordingly, the College of Santa Cruz, in Tlaltelolco, one of the quarters of the City of Mexico reserved for the Indians, was founded under the bishop's patronage. Among the faculty were graduates of the University of Paris and of Salamanca, two of the greatest universities of Europe of this time, and they had not only the ambition to teach, but also to follow out that other purpose of a university—to investigate and write. Among them were such eminent scholars as Bernardino de Sahagun, the founder of American anthropology, and Juan de Torquemada, who is himself a product of Mexican education, whose "Monarquia Indiana" is a great storehouse of facts concerning Mexico before the coming of the whites, and precious details with regard to Mexican antiquities.

Knowing this, it is not surprising that the curriculum was broad and liberal. Besides the elementary branches and grammar and rhetoric, instruction was provided in Latin, philosophy, Mexican medicine, music, botany (especially with

reference to native plants), the zoology of Mexico, some principles of agriculture, and the native languages. It is not surprising to be told that many of the graduates of this college became Alcaldes and Governors in the Indian towns, and that they did much to spread civilization and culture among their compatriots. The English-speaking Americans furnished nothing of this kind, and our colleges for Indians came only in the nineteenth century. It is true that Harvard, according to its charter, was "for the education of the Indian youth of this country in knowledge and godliness," but the Indians were entirely neglected and no serious effort was ever made to give them any education. It was a son of the Puritans who said that his forefathers first fell on their knees and then on the aborigines, and the difference in the treatment of the Indians by the English and the Spaniards is a marked note in all their history.

During the next few years schools were established also for the education of mestizo children, that is, of the mixed race who are now called Creoles. In fact, in 1536 a fund from the Royal Exchequer was given for the teaching of these children. Strange as it may seem, for we are apt to think that the teaching of girls is a modern idea, schools were also established for Indian girls. All of these schools continued to flourish, and gradually spread beyond the City of Mexico itself into the villages of the Indians. As a mat-

ter of fact, wherever a mission was established a school was also founded. Every town, Indian as well as Spanish, was by law required to have its church, hospital and school for teaching Indian children Spanish and the elements of religion. The teaching and parish work in the Indian villages was in charge of two or more friars, as a rule, and was well done. The remains of the monasteries with their magnificent Spanish-American architecture, are still to be seen in many portions of Mexico and of the Spanish territories that have been incorporated with the United States, in places where they might be least expected, and they show the influence for culture and education that gradually extended all over the Mexican country.

In the course of time the necessity for advanced teaching for the constantly growing number of native whites began to be felt, and so during the fifth decade of the sixteenth century a number of schools for them came into existence in the City of Mexico. The need was felt for some central institution. Accordingly, the Spanish Crown was petitioned to establish authoritatively a university. Such a step would have been utterly out of the question in English America, because the Crown was so little interested in colonial affairs. In the Spanish country, however, the Crown was deeply interested in making the colonists feel that though they were at a distance from the centre of government, their rulers were interested in

securing for them, as far as possible, all the opportunities of life at home in Spain. This is so different from what is ordinarily presumed to have been the attitude of Spain towards its colonies as to be quite a surprise for those who have depended on old-fashioned history, but there can be no doubt of its truth. Accordingly, the University of Mexico received its royal charter the same year as the University of Lima (1551). Mexico was not formally organized as a university until 1553. In the light of these dates, it is rather amusing to have the Century Dictionary, under the word Harvard University, speak of that institution as the oldest and largest institution of learning in America. It had been preceded by almost a century, not only in South America, but also in North America. The importance of Harvard was as nothing compared to the universities of Lima and Mexico, and indeed for a century after its foundation Harvard was scarcely more than a small theological school, with a hundred or so of pupils, sometimes having no graduating class, practically never graduating more than eight or ten pupils, while the two Spanish-American universities counted their students by the thousand and their annual graduates by the hundred.

The reason for the success of these South American universities above that of Harvard is to be found in the fact that Harvard's sphere of usefulness was extremely limited because of re-

ligious differences and shades of differences. This had hampered all education in Protestant countries very seriously. Professor Paulsen, who holds the chair of philosophy at the University of Berlin, calls attention to the fact that the Reformation had anything but the effect of favoring education that has often been said. The picture that he draws of conditions in Germany a century before the foundation of Harvard would serve very well as a lively prototype of the factors at work in preventing Harvard from becoming such an educational institution as the universities of Lima and Mexico so naturally became. He says, in "German Universities and University Studies": "During this period [after Luther's revolt] a more determined effort was made to control instruction than at any period before or since. The fear of heresy, the extraordinary anxiety to keep instruction well within orthodox lines, was not less intense at the Lutheran than at the Catholic institutions; perhaps it was even more so, because here doctrine was not so well established, apostasy was possible in either of two directions, toward Catholicism or Calvinism. Even the philosophic faculty felt the pressure of this demand for correctness of doctrines. Thus came about these restrictions within the petty states and their narrow-minded established churches which well-nigh stifled the intellectual life of the German people."

Because of this and the fact that the attendance

at the college did not justify it, the school of medicine at Harvard was not opened until after the Revolution (1783). The law school was not opened until 1817.

This is sometimes spoken of as the earliest law school connected with a university on this continent, but, of course, only by those who know nothing at all about the history of the Spanish-American universities. In the Spanish countries the chairs in law were established very early; indeed, before those of medicine. Canon law was always an important subject in Spanish universities, and civil law was so closely connected with it that it was never neglected.

When the charter of the University of Lima was granted by the Emperor Charles V, in 1551, the town was scarcely more than fifteen years old. It had been founded in 1535. Curiously enough, just about the same interval had elapsed between the foundation of the Massachusetts colony by the Pilgrims and the legal establishment of the college afterward known as Harvard by the General Court of the colony. It is evident that in both cases it was the needs of the rising generation who had come to be from twelve to sixteen years of age that led to the establishment of these institutions of higher education. The actual foundation of Harvard did not come for two years later, and the intention of the founders was not nearly so broad as that of the founders of the University of Lima. Already at Lima schools had been es-

tablished by the religious orders, and it was with the idea of organizing the education as it was being given that the charter from the Crown was obtained. With regard to both Lima and Mexico, within a few years a bull of approval and confirmation was asked and obtained from the Pope. The University of Lima continued to develop with wonderful success. In the middle of the seventeenth century it had more than a thousand students, at the beginning of the eighteenth it had two thousand students, and there is no doubt at all of its successful accomplishment of all that a university is supposed to do.

Juan Antonio Ribeyro, who was the rector of the University of Lima forty years ago, said in the introduction to "The University Annals for 1869" that, "It cannot be denied that the University of Peru during its early history filled a large rôle of direct intervention for the formation of laws, for the amelioration of customs and in directing all the principal acts of civil and private society, forming the religious beliefs, rendering them free from superstitions and errors and influencing all the institutions of the country to the common good." Certainly this is all that would be demanded of a university as an influence for uplift, and the fact that such an ideal should have been cherished shows how well the purpose of an educational institution had been realized.

The scholarly work done by some of these professors at Spanish-American universities still re-

mains a model of true university work. It is the duty of the university to add to knowledge as well as to disseminate it. That ideal of university existence is supposed to be a creation of the nineteenth century, and indeed is often said to have been brought into the history of education by the example of the German universities. We find, however, that the professors of the Spanish-American universities accomplished much in this matter and that their works remain as precious storehouses of information for after generations. Professor Bourne has given but a short list of them in addition to those that have already been mentioned, but even this furnishes an excellent idea of how much the university professors of the sixteenth and seventeenth centuries in Spanish America were taking to heart the duty of gathering, arranging and classifying knowledge for after generations. They did more in the sciences than in anything else. It is often thought that our knowledge of the ethnology and anthropology of the Indians is entirely the creation of recent investigators, but that is true only if one leaves out of account the work of these old Spanish-American scholars. Professor Bourne says:

"The most famous of the earlier Peruvian writers were Acosta, the historian, the author of the 'Natural and Civil History of the Indies'; the mestizo Garciasso de la Vega, who was educated in Spain and wrote of the Inca Empire and De Soto's expedition; Sandoval, the author of the

first work on Africa and the negro written in America; Antonio Leon Pinelo, the first American bibliographer, and one of the greatest as well of the indefatigable codifiers of the old legislation of the Indies. Pinelo was born in Peru and educated at the Jesuit College in Lima, but spent his literary life in Spain."

Of the University of Mexico more details are available than of Peru, and the fact that it was situated here in North America and that the culture which it influenced has had its effect on certain portions of the United States, has made it seem worth while to devote considerable space to it. The University was called the Royal and Pontifical University of Mexico, because, while it was founded under the charter of the King of Spain, this had been confirmed by a bull from the Pope, who took the new university directly under the patronage of the Holy See. The reason for the foundation of the university, as the men at that time saw it, is contained in the opening chapter of St. John's Gospel, which is quoted as the preamble of the constitutions of the university: "In the beginning was the Word, and the Word was with God. The same was in the beginning with God. All things were made by Him and without Him was made nothing that was made. In Him was Life, and the Life was the light of men." This they considered ample reason for the erection of a university and the spread of knowledge with God's own sanction.

The patron saints of the university, as so declared by the first article of the constitutions, were St. Paul the Apostle, and St. Catherine the Martyr. Among the patrons, however, were also mentioned in special manner two other saints—St. John Nepomucen, who died rather than reveal the secrets of the confessional, and St. Aloysius Gonzaga, the special patron of students. It is evident that these two patrons had been chosen with a particular idea that devotion to them would encourage the practice of such virtues and devotion to duty as would be especially useful to the students, clerical and secular, of the university. On all four of the feast days of these patrons the university had a holiday. This would seem to be adding notably to the number of free days in a modern university, but must have meant very little at the University of Mexico, they had so many other free days. The most striking difference between the calendar of the University of Mexico and that of a modern university would be the number of days in the year in which no lectures were given. There were some forty of these altogether. Besides the four patron saint days, the feast day of every Apostle was a holiday. Besides these, all the Fathers and Doctors of the Church gave reasons for holidays. Then there was St. Sebastian's Day, in order that young men might be brave, St. Joseph's Day, the Annunciation, the Expectation, the Assumption and the Nativity of the Blessed Virgin, the In-

vention of the Holy Cross, the Three Rogation Days and the Feast of Our Lady of the Snows. Besides, there were St. Magdalen's, St. Ann's, St. Ignatius' and St. Lawrence's Day. These were not all, but this will give an idea how closely connected with the Church were the lectures at the university, or, rather, the intermission from the lectures. It might be said that this was a serious waste of precious time, and that our universities in the modern time would not think of imitating them, but such a remark could come but from some one who did not realize the real condition that obtained in the old-time universities. At the present time our universities finish their scholastic year about the middle of May and do not begin again until October—nearly twenty weeks. At these old universities their annual intermission between scholastic years lasted only the six weeks from the Feast of the Nativity of the Blessed Virgin, September 8, to St. Luke's Day, October 18. They had five weeks at Easter time and two weeks at Christmas time. They spread their year out over a longer period and compensated for shorter vacations by granting holidays during the year. Their year's labor was less intense and spread out over more ground than ours.

The development of the University of Mexico into a real university in the full sense of the old *studium generale,* in which all forms of human knowledge might be pursued, is very interesting

and shows the thoroughgoing determination of the Spanish Americans to make for themselves and their children an institute of learning worthy of themselves and their magnificent new country.

Chartered in 1551, it was not formally opened until 1553. Chairs were established in this year in theology, Sacred Scripture, canon law and decretals, laws, art, rhetoric and grammar. Both Spanish and Latin were taught in the classes of grammar and rhetoric. To these was added very shortly a chair in Mexican Indian languages, in accordance with the special provisions of the imperial charter. The university continued to develop and added further chairs and departments as time went on. It had a chair of jurisprudence at the beginning, but its law department was completed in 1569 by the addition of two other chairs, one in the institutes of law, the other in codes of law. In the meantime the university had begun to make itself felt as a corporate body for general uplift by publications of various kinds. Its professor of rhetoric, Dr. Cervantes Salazer, published in 1555 three interesting Latin dialogues in imitation of Erasmus' dialogues. At the moment Erasmus' "Colloquia" was the most admired academic work in the university world of the time. The first of these dialogues described the University of Mexico, and the other two, taking up Mexico City and its environments, gave an excellent idea of

what the Spanish-American capital of Mexico was three centuries and a half ago.

"The early promoters of education and missions did not rely upon the distant European presses for the publication of their manuals. The printing press was introduced into the New World probably as early as 1536, and it seems likely that the first book, an elementary Christian doctrine called 'La Escala Espiritual' (the ladder of the spirit), was issued in 1537. No copy of it, however, is known to exist. Seven different printers plied their craft in New Spain in the sixteenth century. Among the notable issues of these presses, besides the religious works and church service works, were dictionaries and grammars of the Mexican languages, Puga's 'Cedulario' in 1563, a compilation of royal ordinances, Farfan's 'Tractado de Medicina.' In 1605 appeared the first text-book published in America for instruction in Latin, a manual of poetics with illustrative examples from heathen and Christian poets." (Bourne.)

With the light thrown on the early history of printing on this continent by a paragraph like this, how amusing it is to be told that the tradition among the printers and the publishers and even the bibliophiles of the United States is that the first book printed in America was the Massachusetts Bay Psalm Book printed, I believe, in 1637. There were no less than seven printing presses at work in Mexico during the sixteenth

century, fully fifty years before the Massachusetts Bay Psalm Book was issued. How interesting it is for those who still like to insist that the Catholic Church is opposed to the distribution of the Scriptures to the people or its printing in the vernacular, to find how many editions of it were printed in Mexico and in South America during the sixteenth century. This story of the printing press in Spanish America in the early days would of itself make a most interesting chapter in a volume on American origins, which could probably be extended into a very valuable little manual of bibliography and bibliophilic information that would arouse new interest in the accumulation of early American books.

The university had been founded just twenty-five years when provision was made for the establishment of the medical department. According to most of the chronicles the first chair in medicine was founded June 21, 1578, although there are some authorities who state that this establishment came only in 1580. I am a graduate of the University of Pennsylvania Medical School myself, and I yield to none of her sons in veneration for my Alma Mater, but I cannot pass over this statement of the foundation of the medical school in Mexico without recalling that we have been rather proud at the University of Pennsylvania to be known as the First American Medical School. This is, of course, only due to our fond United States way of assuming

ourselves to be all America and utterly neglecting any knowledge of Spanish America. I believe that there are tablets erected at the University of Pennsylvania chronicling our priority. One of them is to the first graduating class, the other to the first faculty of the medical school. I believe that between the erection of the two tablets there had come to be some suspicion of the possibility that South America was ahead of us in this respect and so the second tablet specifically mentions North America. When I talked some time ago before the College of Physicians of Philadelphia on this subject one of my friends, who was a teacher at the university, asked me what they should do with their tablets. I suggested that, by all means, they should be allowed to remain, and that as soon as possible an opportunity should be secured to erect the third tablet containing a statement of the real facts with regard to the place of the University of Pennsylvania as the protagonist in medicine in the United States. The tablets will then serve to show the gradual evolution of our knowledge of the true history of medical education in this country. It is all the more important that this should be the arrangement because the University of Pennsylvania has been a leader in "the discovery" of South America that has been made by us in the last few years.

Between the date of the foundation of the first chair in medicine at the beginning of the

last quarter of the sixteenth century and the foundation of the city, Mexico had not been without provision of physicians. In the very first year of the existence of the University of Mexico, though there was no formal faculty of medicine, two doctors received their degrees in medicine from the university. They had been students in Spain and were able to satisfy the faculty of their ability. This shows that the institution was considered to have the power to confer these degrees upon those who brought evidence of having completed the necessary studies, though it was not in a position to provide facilities for these studies. It is evident that this custom continued in subsequent years until the necessity for medical studies at home became evident. The intimate connection between the universities of old Spain and of New Spain is a very interesting subject in the educational history of the time. Even before the foundation of the university, however, definite efforts were made by the authorities to secure proper medical service for the colonists and to prevent their exploitation by quacks and charlatans.

Strict medical regulations were established by the Municipal Council of the City of Mexico in 1527 so as to prevent quacks from Europe, who might think to exploit the ills of the settlers in the new colony, from practising medicine. Licenses to practise were issued only to those who showed the possession of a university degree.

This strict regulation of medical practice was extended also to the apothecaries in 1529. Even before this, arrangements had been made for the regular teaching of barber-surgeons, so that injuries and wounds of various kinds might be treated properly, and so that emergencies might be promptly met, even in the absence of a physician, by these barber-surgeons. Dr. Bandelier, in his article on Francisco Bravo in the second volume of the Catholic Encyclopedia, calls attention to some important details with regard to medicine in Mexico in the early part of the sixteenth century, and especially to this distinguished physician who published the first book on medicine in that city in 1570.

Three years before that time Dr: Pedrarius de Benavides had published his "Secretos de Chirurgia" at Valladolid, in Spain, a work which had been written in America and contained an immense amount of knowledge that is invaluable with regard to Indian medicinal practice. Dr. Bravo's work, however, has the distinction of being the first medical treatise printed in America.

The issuance of these books shows the intense interest in medicine in the sixteenth century, but there are other details which serve to show how thorough and practical were the efforts of the authorities in securing the best possible medical practice. In 1524 there was founded in the City of Mexico a hospital, which still stands and which was a model in its way. That way was

much better than the mode of the construction of hospitals in the eighteenth century, for instance, when hospitals and care for the ailing reached the lowest ebb in modern times. Other hospitals besides this foundation by Cortez soon arose, and the wards of these hospitals were used for purposes of clinical teaching. Clinical or bedside teaching in medicine is supposed to be a comparatively recent feature of medical education. There are traces of it, however, at all times in history and while at times when theory ruled the practical application of observation waned, it was constantly coming back whenever men took medical education seriously. Its employment in Mexico seems to have been an obvious development of their very practical methods, which began with the teaching of first aid to the injured and developed through special studies of the particular diseases of the country and of the methods of curing them by native drugs.

A chair of botany existed already in connection with the university, and this, with the lectures on medicine, constituted the medical training until 1599, when a second medical lectureship was added. During the course of the next twenty years altogether seven chairs in medicine were founded, so that besides the two lectureships in medicine there was a chair of anatomy and surgery, a special chair of dissection, a chair of therapeutics, the special duty of which was to lecture on Galen "*De Methodo Medendi*," a

chair of mathematics and astrology, for the stars were supposed to influence human constitutions by all the learned men of this time and even Kepler and Galileo and Tycho-Brahe were within this decade making horoscopes for important people in Europe, and, finally, a chair of prognostics. Most of the teaching was founded on Hippocrates and Galen, and lest this should seem sufficient to condemn it as hopelessly backward in the minds of many, it may be recalled that during the century following this time Sydenham, in England, and Boerhaave, in Holland, the most distinguished medical men of their time and looked on with great reverence by the teachers of ours, were both of them pleading for a return to Hippocrates and Galen. As a matter of fact, the medical school of the University of Mexico was furnishing quite as good a medical training as the average medical school in Europe at that time, at least so far as the subjects lectured on are concerned. Indeed, it was modelled closely after the Spanish universities, which were considered well up to the standard of the time.

In the meantime additional chairs in university subjects continued to be founded. Another chair in arts was established in 1586, and further chairs in law and grammar were added at the beginning of the sixteenth century. The Spanish Crown was very much interested in Mexican education, and King Philip II of Spain, who is usually mentioned in English history for quite

other qualities than his interest in culture and education, was especially liberal in his provision from the Crown revenues of funds for the university. At the beginning of the seventeenth century, according to Flores in his "History of Medicine in Mexico from the Indian Times Down to the Present," the total amount of income from the Crown allowed the University of Mexico was nearly $10,000. This was about Shakespeare's time, and so we have readily available calculations as to the buying power of money at that time compared to our own. It is usually said that the money of Elizabeth's time had eight to ten times the trading value of ours. This would mean that the University of Mexico had nearly an income of $100,000 apart from fees and other sources of revenue. This would not be considered contemptible even in our own day for a university having less than twenty professorships.

The number of students at the University of Mexico is not absolutely known, but, as we have seen, Professor Bourne calculates that the University of Lima had at the beginning of the eighteenth century more than 2,000 students. The University of Mexico at the same time probably had more than 1,000 students, and both of these universities were larger in number than any institution of learning within the boundaries of the present United States until after the middle of the nineteenth century. After all, we began to have universities in the real sense of

that word—that is, educational institutions giving opportunities in undergraduate work and the graduate departments of law, medicine and theology—not until nearly the end of the first quarter of the nineteenth century. Our medical and law schools did not, as a rule, become attached to our universities until the second half of the nineteenth century, and even late in that. This was to the serious detriment of post-graduate work, and especially detrimental to the preliminary training required for it, and consequently to the products of these schools.

Before a student could enter one of the post-graduate departments at the University of Mexico in law or medicine, he was required to have made at least three years of studies in the undergraduate departments. When we contrast this regulation with the custom in the United States, the result is a little startling. Until the last quarter of the nineteenth century students might enter our medical schools straight from the plow or the smithy or the mechanic's bench, and without any preliminary education, after two terms of medical lectures consisting of four months each, be given a degree which was a license to practise medicine. The abuses of such a system are manifest, and actually came into existence. They were not permitted in Mexico even in the seventeenth century.

It might perhaps be thought that these magnificent opportunities in education were provided

only for the higher classes, or concerned only book learning and the liberal and professional studies. Far from any such exclusiveness as this, their schools were thoroughly rounded and gave instruction in the arts and crafts and recognized the value of manual training. We have only come to appreciate in the last few decades how much we have lost in education in America by neglecting these features of education for the masses. While Germany has manual training for over fifty per cent. of the children who go to her schools, here in the United States we provide it for something less than one per cent. of our children. They made no such mistake as this in the Spanish-American countries. Indeed, Professor Bourne's paragraph on this subject is perhaps the most interesting feature of what he has to say with regard to education in Spanish America. The objective methods of education, as he depicts them, the thoroughly practical content of education, and the fact that the Church was one of the main factors in bringing about this well-rounded education, is of itself a startling commentary on the curiously perverted notions that have been held in the past with regard to the comparative value of education in Spanish and in English America and the attitude of the Church toward these educational questions:

"Both the Crown and the Church were solicitous for education in the colonies, and provisions were made for its promotion on a far greater

scale than was possible or even attempted in the English colonies. The early Franciscan missionaries built a school beside each church, and in their teaching abundant use was made of signs, drawings and paintings. The native languages were reduced to writing, and in a few years Indians were learning to read and write. Pedro de Gante, a Flemish lay brother and a relative of Charles V, founded and conducted in the Indian quarter in Mexico a great school, attended by over a thousand Indian boys, which combined instruction in elementary and higher branches, the mechanical and fine arts. In its workshops the boys were taught to be tailors, carpenters, blacksmiths, shoemakers and painters."

If there was all this of progress in education in Spanish-American countries in advance of what we had in the United States, people will be prone to ask where, then, are the products of the Spanish-American education? This is only a fair question, and if the products cannot be shown, their education, however pretentious, must have been merely superficial or hollow, and must have meant nothing for the culture of their people. We are sure that most people would consider the question itself quite sufficient for argument, for it would be supposed to be unanswerable.

Such has been the state of mind created by history as it is written for English-speaking people, that we are not at all prepared to think that there

can possibly be in existence certain great products of Spanish-American education that show very clearly how much better educational systems were developed in Spanish than in English America. The fact that we do not know them, however, is only another evidence of the one-sidedness of American education in the North, even at the present time. Our whole attitude toward the South American people, our complacent self-sufficiency from which we look down on them, our thoroughgoing condescension for their ignorance and backwardness, is all founded on our lack of real knowledge with regard to them.

The most striking product of South American education was the architectural structures which the Spanish-American people erected as ornaments of their towns, memorials of their culture and evidences of their education. The cathedrals in the Spanish towns of South America and Mexico are structures, as a rule, fairly comparable with the ecclesiastical buildings erected by towns of the same size in Europe. As a rule, they were planned at least in the sixteenth century, and most of them were finished in the seventeenth century. Their cathedrals are handsome architectural structures worthy of their faith and enduring evidence of their taste and love of beauty. The ecclesiastical buildings, the houses of their bishops and archbishops and their monasteries were worthy of their cathedrals and churches. Most of them are beautiful, all of them are dignified, all of them had

a permanent character that has made them endure down to our day and has made them an unfailing ornament of the towns in which they are. Their municipal buildings partook of this same type. Some of them are very handsome structures. Of their universities we have already heard that they were imposing buildings from without, handsomely decorated within.

It must not be forgotten that the Spanish Americans practically invented the new style of architecture. How effective that style is, we had abundant opportunity to see when it was employed for the building of the Pan-American Exposition at Buffalo. That style is essentially American. It is the only new thing that America has contributed to construction since its settlement. How thoroughly suitable it was for the climate for which it was invented, those who have had experience of it in the new hotels erected in Florida, in the last decade or so, can judge very well. Many of its effects are an adaptation of classical formulæ to buildings for the warm, yet uncertain climate of many parts of South America. Some of the old monasteries constructed after this style are beautiful examples of architecture in every sense of the word. If the Spanish-American monks had done nothing else but leave us this handsome new model in architecture they would not have lived in vain, nor would their influence in American life have been without its enduring effects. This is a typical

LIBRARY OF THE UNIVERSITY OF CALIFORNIA

product of the higher culture of the South Spanish-American people.

With regard to the churches, it may be said that the spirit of the Puritans was entirely opposed to anything like the ornamentation of their churches, and that, indeed, these were not churches in the usual sense of the word, but were merely meeting houses. Hence there was not the same impulse to make them beautiful as lifted the Spanish Americans into their magnificent expressions of architectural beauty. On the other hand, there are other buildings in regard to which, if there had been any real culture in the minds of the English Americans, we have a right to expect some beauty as well as usefulness. If we contrast for a moment the hospitals of English and Spanish America the difference is so striking as to show the lack of some important quality in the minds of the builders at the north. Spanish-American hospitals are among the beautiful structures with which they began to adorn their towns early, and some of them remain at the present day as examples of the architectural taste of their builders. They were usually low, often of but one story in height, with a courtyard and with ample porticos for convalescents, and thick walls to defend them from the heat of the climate. In many features they surpass many hospitals that have been built in America until very recent years. They were modelled on the old mediæval hospitals, some of which are very beautiful ex-

amples of how to build places for the care of the ailing.

Contrast for a moment with this the state of affairs that has existed with regard to our church buildings and our public structures of all kinds in North America, down to the latter half of the nineteenth century. We have no buildings dating from before the nineteenth century that have any pretension to architectural beauty. They were built merely for utility. Some of them still have an interest for us because of historical associations, but they are a standing evidence of the lack of taste of our Anglo-Saxon ancestors. The English poet, Yeats, said at a little dinner given to him just before he left this country ten years ago, that no nation can pretend to being cultured until the very utensils in the kitchen are beautiful as well as useful. What is to be said, then, of a nation that erects public buildings that are to be merely useful? As a matter of fact, most of them were barracks. The American people woke up somewhat in the nineteenth century, but the awakening was very slow. A few handsome structures were erected, but it is not until the last decade or two that we have been able to awaken public taste to the necessity for having all our public buildings beautiful as well as useful.

The effect of this taste for structural beauty on the appearance of the streets of their towns was an important element in making them very different from our cramped and narrow pathways.

The late Mr. Ernest Crosby once expressed this very emphatically in an after-dinner speech, by detailing his experience with regard to Havana. He had visited the Cuban capital some twenty years ago, and found it very picturesque in its old Spanish ways. It is true the streets were dirty and the death-rate was somewhat high, but the vista that you saw when you came around the corner of a street, was not the same that you had seen around every other corner for twenty miles; it was different. It was largely a city of homes, with some thought of life being made happy, rather than merely being laborious. It was a place to live in and enjoy life while it lasted, and not merely a place to exist in and make money. He came north by land. The first town that he struck on the mainland, he said, reminded him of Hoboken. Every other town that he struck in the North reminded him more and more of Hoboken, until he came to the immortal Hoboken itself. The American end of the Anglo-Saxon idea seemed to him to make all the towns like Hoboken as far as possible. There is only one town in this country that is not like Hoboken, and that is Washington; and whenever we let the politicians work their wills on that—witness the Pension Building—it has a tendency to grow more and more like Hoboken. Perhaps we shall be able to save it. As for Havana, he said he understood that the death-rate had been cut in two, and that yellow fever was no longer epi-

demic there, but he understood also that the town was growing more and more like Hoboken, so that he scarcely dared go back to see it.

The parable has a lesson that is well worth driving home for our people, for it emphasizes a notable lack of culture among the American people, which did not exist among the Spanish Americans, a lack which we did not realize until the last decade or two, though it is an important index of true culture. The hideous buildings that we have allowed ourselves to live in in America, and, above all, that we have erected as representing the dignity of city, and only too often even of state, together with the awful evidence of graft, whenever an attempt has been made to correct this false taste and erect something worthy of us, the graft usually spoiling to a very great extent our best purposes, proclaim an absence of culture in American life that amounts to a conviction of failure of our education to be liberal in the true sense of the word.

There were other products of Spanish-American education quite as striking as the architectural beauties with which Mexicans and South Americans adorned their towns. Quite as interesting, indeed, as their architecture is their literature. Ordinarily we are apt to assume that because we have heard almost nothing of Spanish-American literature, there must be very little of it, and what little there is must have very little significance. This is only another one of these examples

of how ridiculous it is to know something "that ain't so." Spanish-American literature is very rich. It begins very early in the history of the Spanish settlement. It is especially noteworthy for its serious products, and when the world's account of the enduring literature of the past four centuries will be made up much more of what was written in South America will live than what has been produced in North America. This seems quite unpatriotic, but it is only an expression of proper estimation of values, without any of that amusing self-complacency which so commonly characterizes North American estimation of anything that is done by our people.

South American literature, in the best sense of that much abused term, begins shortly after the middle of the sixteenth century, with the writing of the Spanish poet, Ercilla's, epic, "Araucana," which was composed in South America during the decade from 1550 to 1560. This is a literary work of genuine merit, that has attracted the attention of critics and scholars of all kinds and has given its author a significant place even in the limited field of epic poetry among the few great names that the world cares to recall in this literary mode. Voltaire considered this epic poem a great contribution to literature, and in the prefatorial essay to his own epic, the "Henriade," he praises it very highly. The poem takes its name from the Araucanos Indians, who had risen in revolt against the Spaniards in Chile, and

against whom the poet served for nearly ten years. He did not learn to despise them, and while the literature which does justice to the lofty sentiments which sometimes flowed from mouths of great Indian chiefs, is supposed to be much more recent, Ercilla's most enthusiastically extolled passage is the noble speech which he has given to the aged chief, Colocolo, in the "Araucana."

The expedition against the Araucanos inspired two other fine poems—that of Pedro de Ona, "Arauco Domado," written near the end of the century, and "Araucana," written by Diego de Santisteban, whose poem also saw the light before the seventeenth century opened. A fourth poet, Juan de Castellanos, better than either of these, wrote "Elegias de Varones Ilustres de Indias." He was a priest who had served in America, and who remembered some of the magnificent traits of the Indians that he had observed during his life among them, and made them the subject of his poetry. This was only the beginning of a serious Spanish-American literature, that has continued ever since. Father Charles Warren Currier, in a series of lectures at the Catholic Summer School three years ago, did not hesitate to say that the body of Spanish-American literature was much larger and much more important, and much more of it was destined to endure than of our English-American literature. In the light of what these Spaniards had done for education in their universities, and for the beauty of life in

their cities by their architecture, this is not so surprising a saying as it might otherwise be. All of these things stand together and are confirmations one of the other.

The most interesting product of Spanish-American education, however,—the one which shows that it really stood for a higher civilization than ours,—remains to be spoken of. It consists of their treatment of the Indians. From the very beginning, as we have just shown, their literature in Spanish America did justice to the Indians. They saw his better traits. It is true they had a better class of Indians, as a rule, to deal with, but there is no doubt also that they did much to keep him on a higher level, while everything in North America that was done by the settlers was prone to reduce the native in the scale of civilization. He was taught the vices and not the virtues of civilization, and little was attempted to uplift him. Just as the literary men were interested in the better side of his character, so the Spanish-American scientists were interested in his folklore, in his medicine, in his arts and crafts, in his ethnology and anthropology—in a word, in all that North Americans have only come to be interested in during the nineteenth century. Books on all these subjects were published, and now constitute a precious fund of knowledge with regard to the aborigines that would have been lost only for the devotion of Spanish-American scholars.

It is not surprising, then, that the Indian him-

self, with all this interest in him, did not disappear, as in North America, but has remained to constitute the basis of South American peoples. If the South American peoples are behind our own in anything, it is because large elements in them have been raised from a state of semi-barbarism into civilization, while our people have all come from nations that were long civilized and we have none at all of the natives left. Wherever the English went always the aborigines disappeared before them. The story is the same in New Zealand and Australia as it is in North America, and it would be the same in India, only for the teeming millions that live in that peninsula, for whom Anglo-Saxon civilization has never meant an uplift in any sense of the word, but rather the contrary. The white man's burden has been to carry the Indian, instilling into him all the vices, until no longer he could cling to his shifty master and was shaken off to destruction.

This story of the contrast of the treatment of the Indian at the North and the South is probably the best evidence for the real depth of culture that the magnificent education of the Spaniards, so early and so thoroughly organized in their colonies, accomplished for this continent. Alone it would stand as the highest possible evidence of the interest of the Spanish Government and the Spanish Church in the organization not only of education, but of government in such a way as to bring happiness and uplift for

both natives and colonists in the Spanish-American countries. Abuses there were, as there always will be where men are concerned and where a superior race comes in contact with an inferior. These abuses, however, were exceptions and not the rule. The policy instituted by the Spaniards and maintained in spite of the tendencies of men to degenerate into tyranny and misuse of the natives is well worthy of admiration. English-speaking history has known very little of it until comparatively recent years. Mr. Sidney Lee, the editor of the English Biographical Dictionary and the author of a series of works on Shakespeare which has gained for him recognition as probably the best living authority on the history of the Elizabethan times, wrote a series of articles which appeared in *Scribner's* last year on "The Call of the West." This was meant to undo much of the prejudice which exists in regard to Spanish colonization in this country and to mitigate the undue reverence in which the English explorers and colonists have been held by comparison. There seems every reason to think, then, that this newer, truer view of history is gradually going to find its way into circulation.

In the meantime it is amusing to look back and realize how much prejudice has been allowed to warp English history in this matter, and how, as a consequence of the determined, deliberate efforts to blacken the Spanish name, we have had to accept as history exactly the opposite view to the

reality in this matter. Lest we should be thought to be exaggerating, we venture to quote one of the opening paragraphs of Mr. Sidney Lee's article as it appeared in *Scribner's* for May, 1907: "Especially has theological bias justified neglect or facilitated misconception of Spain's rôle in the sixteenth century drama of American history. Spain's initial adventures in the New World are often consciously or unconsciously overlooked or underrated in order that she may figure on the stage of history as the benighted champion of a false and obsolete faith, which was vanquished under divine protecting Providence by English defenders of the true religion. Many are the hostile critics who have painted sixteenth century Spain as the avaricious accumulator of American gold and silver, to which she had no right, as the monopolist of American trade, of which she robbed others, and as the oppressor and exterminator of the weak and innocent aborigines of the new continent who deplored her presence among them. Cruelty in all its hideous forms is, indeed, commonly set forth as Spain's only instrument of rule in her sixteenth century empire. On the other hand, the English adventurer has been credited by the same pens with a touching humanity, with the purest religious aspirations, with a romantic courage which was always at the disposal of the oppressed native.

"No such picture is recognized when we apply the touchstone of the oral traditions, printed

books, maps and manuscripts concerning America which circulated in Shakespeare's England. There a predilection for romantic adventure is found to sway the Spaniards in even greater degree than it swayed the Elizabethan. Religious zeal is seen to inspirit the Spaniards more constantly and conspicuously than it stimulated his English contemporary. The motives of each nation are barely distinguishable one from another. Neither deserves to be credited with any monopoly of virtue or vice. Above all, the study of contemporary authorities brings into a dazzling light which illumes every corner of the picture the commanding facts of the Spaniard's priority as explorer, as scientific navigator, as conqueror, as settler."

Here is magnificent praise from one who cannot be suspected of national or creed affinities to bias his judgment. He has studied the facts and not the prejudiced statements of his countrymen. The more carefully the work of the Spaniards in America during the sixteenth and seventeenth centuries is studied, the more praise is bestowed upon them. The more a writer knows of actual conditions the more does he feel poignantly the injustice that has been done by the Protestant tradition which abused the good that was accomplished by the Catholic Spanish and which neglected, distorted and calumniated his deeds and motives. This bit of Protestant tradition is, after all, only suffering the fate that every other Prot-

estant position has undergone during the course of the development of scientific historical criticism. Every step toward the newer, truer history has added striking details to the picture of the beneficent influences of the Church upon her people in every way. It has shown up pitilessly the subterfuges, the misstatements and the positive ignorance which have enabled Protestantism to maintain the opposite impression in people's minds in order to show how impossible was agreement with the Catholic Church, since it stood for backwardness and ignorance and utter lack of sympathy with intellectual development.

Now we find everywhere that just the opposite was true. Whenever the Reformation had the opportunity to exert itself to the full, education and culture suffered. Erasmus said in his time, "Wherever Lutheranism reigns there is an end of literature." Churches and cathedrals that used to be marvellous expressions of the artistic and poetic feeling of the people became the ugliest kind of mere meeting houses. Rev. Augustus Jessop, himself an Anglican clergyman, tells how "art died out in rural England" after the Reformation, which he calls The Great Pillage, and "King Whitewash and Queen Ugliness ruled supreme for centuries." The same thing happened in Germany, and education was affected quite as much as art. German national development was delayed, and she has come to take her place in world influence only in the nineteenth

century, after most of the influence of the religious revolt led by Luther in the sixteenth century has passed away. These are but a few of the striking differences in recent history that are so well typified by the contrast between what was accomplished for art and culture and architecture and education by the Catholic Spaniard and the English Protestant here in America during the sixteenth, seventeenth and eighteenth centuries. Truth is coming to her own at last, and it is in the history of education particularly that advances are being made which change the whole aspect of the significance of history during the past 350 years.

THE MEDICAL PROFESSION FOR SIX THOUSAND YEARS

"Tu recte vivis si curas esse quod audis;
Neve putes alium sapiente bonoque beatum."
—HORACE, *Ep.*, 1, 16.

[You are living right if you take care to be what people say you are. Do not imagine that any one who is really happy is other than wise and good.]

"Quod ipse sis, non quod habearis, interest."—PUBLIUS SYRUS.

[The question is what you are, not what you are thought to be.]

"May you so raise your character, that you may help to make the next age a better thing, and leave posterity in your debt for the advantage it shall receive by your example."—LORD HALIFAX.

THE MEDICAL PROFESSION FOR SIX THOUSAND YEARS *

I HAVE felt that the first graduation of the youngest of the medical schools might very well be occupied with the consideration of the place of the medical profession in history. We are rather apt in the modern time to neglect the lessons of history and, above all, of the history of science, first because it is not always easy to get definite information with regard to it, and secondly and mainly because we are likely to imagine that scientific and medical history can mean very little for us. In America particularly we have neglected the history of medicine and it has been one of the definite efforts at Fordham University School of Medicine to renew interest in this subject. It is entirely too important to be neglected and it has valuable lessons for all generations, but especially for a generation so occupied with itself, that it does not properly consider the claims of the past to recognition for fine work accomplished, and for the exhibition of some of the best qualities of the human intellect in the pursuit of scientific and practical medical knowledge in previous generations.

* This was the address to the graduates at the First Commencement of the Fordham University School of Medicine, June 9, 1909.

At the earliest dawn of history we find institutions called temples in which men were being treated for their ailments. Those who treated them we have been accustomed to speak of as priests. And such they were, since their functions included the direction of religious services. These religious services, however, were not the exercises of religion as we know them now, but were special services meant to propitiate certain gods who were supposed to rule over health and disease. There were other kinds of temples besides these. We still talk of temples of justice meaning our law courts, and our phrase comes from an older time when people went to have their differences of opinion adjudicated by men who conducted the services of praise and prayer for particular deities who were supposed to mete out justice to men, but the temple attendants were at the same time expert in deciding causes, knowing right and wrong, wise in declaring how justice should be done. These early temples, then, in which the ailing were treated and over which experts in disease and its treatment presided, were not temples in our modern sense, but were much like hospitals as we know them now. They would remind us of the hospitals conducted by religious orders, trained to care for the illnesses of mankind and yet deeply interested in the worship of God.

Human institutions are never so different from one another, even in spite of long distance of time

or place, as they are usually presumed to be. Men and women have not changed in all the period of human history that we know, and their modes and ways of life often have a startling similarity if we but find the key for the significance of customs that seem to be very different. These temples of the gods of health and of disease, then, were places where patients congregated and men studied diseases for generations, and passed on their knowledge from one to another, and accumulated information, and elaborated theories, and came to conclusions, often on insufficient premises, and did many other things that we are doing at the present time. The medical profession is directly descended from these institutions. They are among the oldest that we know of in human history. These special temples are only a little less ancient than other forms of temples if, indeed, they were not the first to be founded, for man's first most clamorous reason for appeal to the gods has ever been himself and his own health.

With the reception of your diplomas this evening you now belong to what is therefore probably the oldest profession in the world. In welcoming you into it let me call your attention particularly to the fact that the history of our profession can be traced back to the very beginning of the course of time, for as long as we have any account of men's actions in an organized social order.

We are very prone in the modern time to think that what we are doing in each successive generation is of so much greater significance than what was accomplished before our time that it is really scarcely worth while to give much attention to the past. This self-sufficient complacency with regard to the present would be quite unbearable only that each successive generation in its turn has had the same tendency and has expiated its fault by being thought little of by subsequent generations. We shall have our turn with those we affect to despise.

It is supposed to be particularly true in every department of science and, above all, in medicine that there is such a wide chasm between what we are doing now and what was accomplished by our forebears, no matter how intelligent they were in the long ago, that to occupy ourselves seriously with the history of medicine may be a pleasant occupation for an elderly physician who has nothing better to do, but can mean very little for the young man entering upon practice or for the physician busy with his patients. Medical history may be good enough for some book-worm interested in dry-as-dust details for their own sake and perhaps because he rejoices in the fact that other people do not know them, but can have very little significance for the up-to-date physician. This is an impression that is dying hard just now, but it is dying. We are learning that there is very little that we are do-

ing even now that has not been done before us and that, above all, the great physicians, no matter how long ago they wrote, always have precious lessons for us that we cannot afford to neglect, even though they be 300 or 600 or 1,800 or even 2,500 years ago. At all of these dates in the past there were physicians whose works will never die.

In every department of human history the impression that we are the only ones whose work is significant has been receiving a sad jolt in recent years, and perhaps in no branch of science is this so true as in medicine. We are coming to realize how much the physicians and surgeons of long distant times accomplished, and, above all, we are learning to appreciate that they approached problems in medicine at many periods of medical history in the best scientific temper of the modern time. Of course there were abuses, but, then, the Lord knows, there are abuses now. Of course their therapeutics had many absurdities in it, but, then, let us not forget that Professor Charles Richet, the director of the department of physiology at the University of Paris, declared not long ago in an article in the best known of French magazines, the *Revue des Deux Mondes,* that the therapeutics of any generation of the world's history always contained many absurdities—for the second succeeding generation. The curious thing about it is that some of these supposed absurdities afterward come

back into vogue and prove to be precious germs of discovery, or remedies of value that occasionally even develop into excellent systems of treatment.

Of course there were superstitions in the old days, but, then, there have been superstitions in medicine at all times. Any one who thinks that we are without superstitions in medicine at the present time, superstitions that are confidently accepted by many regular practising physicians, must, indeed, be innocent. A superstition is in its etymology a survival. It comes from the Latin *superstes,* a survivor. It is the acceptance of some doctrine the reasons for which have disappeared in the progress of knowledge or the development of science, though the doctrine itself still maintains a hold on the minds of man. Superstition has nothing necessarily to do with religion, though it is with regard to religion that doctrines are particularly apt to be accepted after the reasons for them have disappeared. In medicine, however, superstitions are almost as common as in religion. I shall never forget a discussion with two of the most prominent physicians of this country on this subject.

One of them was our greatest pathologist, the other a great teacher of clinical medicine, who came into medicine through chemistry and therefore had a right to opinions with regard to the chemical side of medicine. We had been discussing the question of how much serious medical

education there was in the Middle Ages and how, in spite of the magnificent work done, so many superstitions in medicine continued to maintain themselves. I remarked that it seemed impossible to teach truths to large bodies of men without having them accept certain doctrines which they thought truths but which were only theories and which they insisted on holding after the reasons for them had passed away. I even ventured to say that I thought that there were as many superstitions now, and such as there were, were of as great significance as those that maintained themselves in the Middle Ages. My chemical clinician brother on the right side said, " Let us not forget in this regard the hold the uric acid diathesis has on the English-speaking medical profession." And the brother pathologist on the left side: " Well, and what shall we say of intestinal auto-intoxication? "

Perhaps you will not realize all the force of these expressions at the present time, but after you have been five years in the practice of medicine and have been flooded by the literature of the advertising manufacturing pharmacist and by the samples of the detail man and his advice and suggestion of principles of practice, if you will listen to them, perhaps you will appreciate how much such frank expressions mean as portraying the medical superstitions of our time.

Surely we who have for years been much occupied with the superstition, for such it now

turns out to be, of heredity in medicine, will not be supercilious toward older generations and their superstitions. Until a few years ago we were perfectly sure that a number of diseases were inherited directly. Tuberculosis, rheumatism, gout, various nutritional disturbances all were supposed to pass from father to son and from mother to daughter, or sometimes to cross the sex line. For a time cancer was deemed to be surely hereditary to some degree at least. Now most of us know that probably no disease is directly inherited, that acquired characters are almost surely not transmitted, and that while defects may be the subject of heredity, disease never is. Not only this, biological investigations have served to show that what is the subject of inheritance is just the opposite,—resistance to disease. A person whose father and mother had suffered from tuberculosis used to think it almost inevitable that he too should suffer from it. If they had died that he too would die. Our experts in tuberculosis declare now, that if tuberculosis has existed in the preceding generation there is a much better chance of the patient recovering from it, or at least resisting it for a long time, than if there had been no tuberculosis in the family. We had been harboring the superstition of heredity, the surviver opinion from a preceding generation, until we learned better by observation.

Let us turn from such discussion to the be-

ginnings of the story of our medical profession as it has been revealed to us in recent years.

The first picture that we have of a physician in history is, indeed, one to make us proud of our profession. The first physician was I-em-Hetep, whose name means "the bringer of peace." He had two other titles according to tradition, one of which was "the master of secrets," evidently in reference to the fact that more or less necessarily many secrets must be entrusted to the physician, but also, doubtless, in connection with the knowledge of the secrets of therapeutics which he was supposed to possess. Another of his titles was that of "the scribe of numbers," by which, perhaps, reference is made to his prescriptions, which may have been lengthy, for there are many "calendar" prescriptions in the early days, but may only refer to the necessity of his knowing weights and measures and numbers very exactly for professional purposes. I-em-Hetep lived in the reign of King Tchser, a monarch of the third dynasty in Egypt, the date of which is somewhat uncertain, but is about 4500 B.C. How distinguished this first physician was in his time may be gathered from the fact that the well-known step pyramid at Sakkara, the old cemetery near Memphis, is attributed to him. So great was the honor paid to him that, after his death he was worshipped as a god, and so we have statues of him as a placid-looking man with a certain divine expression, seated with a

scroll on his knees and an air of benignant knowledge well suited to his profession.

I called attention in 1907 * to the fact that the earliest pictures of surgical operations extant had recently been uncovered in the cemetery of Sakkara near Memphis in Egypt. These pictures show that surgery was probably an organized branch of medicine thus early, and the fact that they are found in a very important tomb shows how prominent a place in the community the surgeon held at that time. The oldest document after that which we have with regard to medicine is the "Ebers Papyrus," the writing of which was done probably about 1600 B.C. This, however, is only a copy of an older manuscript or series of manuscripts, and there seems to be no doubt that the text, which contains idioms of a much older period, or, indeed, several periods, probably represents accumulations of information made during 2,000 or even 3,000 years before the date of our manuscript. Indeed, it is not improbable that the oldest portions of the "Ebers Papyrus" owe their origin to men of the first Egyptian dynasties, nearly 5,000 years B.C. To be members of a profession that can thus trace its earliest written documents to a time nearly some 7,000 years ago, is an honor that may be readily appreciated and that may allow of some complacency.

There is a well-grounded tradition which shows

* *Journal of the American Medical Association*, November 8, 1907.

us that an Egyptian monarch with whose name even we are familiar, though we may not be able to pronounce it very well—he was Athothis, the son of Menes—wrote a work on anatomy. The exact date of this monarch's death is sometimes said to be 4157 B.C. We have traces of hospitals in existence at this time and something of the nature of a medical school. Indeed, one may fairly infer that medical education, which had been developing for some time, probably for some centuries, took a definite form at this time in connection with the temples of Saturn. Priests and physicians were the same, or at least physicians formed one of the orders of the clergy and the teachers of medicine particularly were clergymen. This tradition of close affiliation between religion and medicine continued down to the fifteenth century. How few of us there are who realize that until the fourteenth century the professors of medicine at the great universities were not married men, because members of the faculty, as is true at the present time of many members of the faculty in the English universities, were not allowed to marry. The old clerical tradition was still maintaining itself even with regard to the medical teachers.

Perhaps the most interesting thing about this early history of medicine in Egypt is that, with the very earliest dawn of medical history, we have traces of highly developed specialism in medicine. There were thirty-six departments of medicine, or

at least there were thirty-six medical divinities who presided over the particular parts of the human body. In the larger temples, at least, there was a special corps of priest physicians for each one of these departments. Herodotus, the Father of History, is particularly full in his details of Egyptian history, and though he wrote about 400 B.C., nearly 2,300 years ago, his attention was attracted by this highly developed specialism among the Egyptians. He tells us in quaint fashion, "Physicke is so studied and practised with the Egyptians that every disease hath his several physician, who striveth to excell in healing that one disease and not to be expert in curing many. Whereof it cometh that every corner of that country is full of physicians. Some for the eyes, others for the head, many for the teeth, not a few for the stomach and the inwards."

It is interesting to realize that the same state of affairs upon which you young graduates will come now that you are going out to find an opportunity to practise for yourselves at the end of the first decade of the twentieth century, is not very different from that which the great Father of History chronicles as the state of affairs among the Egyptians between 600 and 1,000 before Christ,—let us say about 3,000 years ago. You, too, will find that every corner is full of physicians, some for the eyes, others for the head, many for the teeth, not a few for the stomach and everything else under the sun quite as in an-

cient Egypt. After a time you will probably find that some little corner has been left for you, and you will work hard enough to get into it first, and then to fill it afterward. The story of how young physicians have got on in their first few years has probably been interesting at all times in the world's history. I think that I know about it at five different periods, and in every one of these there seemed to be no possible room, and yet somehow room was eventually found, though only after there had been a struggle, in the midst of which a certain number of the young physicians found another sphere of activity besides medicine.

Of course it is easy to think that these specialties did not amount to much, but any such thought is the merest assumption. A single instance will show you how completely at fault this assumption is. Dentistry is presumed to be a very modern profession. As a matter of fact mummies were found in the cemetery of Thebes whose bodies probably come from before 3000 B.C., who have in their teeth the remains of gold fillings that were well put in, and show good workmanship, nearly 5,000 years ago.* After dentistry, the specialty that we would be sure could not have had any significant existence so long ago would be that of ophthalmology. As a matter of fact, it is with regard to the knowledge of eye diseases displayed by these early teachers of

* Burdett: "History of Hospitals."

medicine that the "Ebers Papyrus" is most startling. It is especially full in diagnosis and contained many valuable hints for treatment. As for laryngology and rhinology, one of the earliest medical records that we have, is the rewarding by one of the kings of Egypt of an early dynasty (nearly 4000 B.C.), of a physician who had cured him of a trouble of the nose of long standing, that seems to have interfered with his breathing.

It is easy to think in spite of all this, that the Egyptians did not know much medicine; but only one who knows nothing about it thinks so. According to Dr. Carl von Klein, who discussed the "Medical Features of the Ebers Papyrus" in the *Journal of the American Medical Association* about five years ago, over 700 different substances are mentioned as of remedial value in this old-time medical work. There is scarcely a disease of any important organ with which we are familiar in the modern time that is not mentioned here. While the significance of diseases of such organs as the spleen, the ductless glands, and the appendix was, of course, missed, nearly every other pathological condition was either expressly named or at least hinted at. The papyrus insists very much on the value of history-taking in medicine, and hints that the reason why physicians fail to cure is often because they have not studied their cases sufficiently. While the treatment was mainly symptomatic, it was not more so than is a great deal of therapeutics

at the present time, even in the regular school of medicine. The number and variety of their remedies and of their modes of administering them is so marvellous, that I prefer to quote Dr. von Klein's enumeration of them for you:

"In this papyrus are mentioned over 700 different substances from the animal, vegetable and mineral kingdoms which act as stimulants, sedatives, motor excitants, motor depressants, narcotics, hypnotics, analgesics, anodynes, antispasmodics, mydriatics, myotics, expectorants, tonics, dentifrices, sialogogues, antisialics, refrigerants, emetics, antiemetics, carminatives, cathartics, purgatives, astringents, cholagogues, anthelmintics, restoratives, hæmatics, alteratives, antipyretics, antiphlogistics, antiperiodics, diuretics, diluents, diaphoretics, sudorifics, anhydrotics, emmenagogues, oxytocics, caustics, ecbolics, galactagogues, irritants, escharotics, caustics, styptics, hæmostatics, emollients, demulcents, protectives, antizymotics, disinfectants, deodorants, parasiticides, antidotes and antagonists."

Scarcely less interesting than the variety of remedies were their methods of administration:

"Medicines are directed to be administered internally in the form of decoctions, infusions, injections, pills, tablets, troches, capsules, powders, potions and inhalations; and externally, as lotions, ointments, plasters, etc. They are to be eaten, drunk, masticated or swallowed, to be taken often once only—often for many days—and the time

is occasionally designated—to be taken mornings, evenings or at bedtime. Formulas to disguise bad tasting medicaments are also given." We have no advantage over the early Egyptians even in elegant prescribing.

With all this activity in Egypt, it is easy to understand that the other great nations of antiquity also have important chapters in the history of medicine. The earliest accounts would seem to indicate that the Chaldeans, the Assyrians and the Babylonians all made significant advances in medicine. It seems clear that a work on anatomy was written in China about the year 2000 B.C. Some of the other Eastern nations made great progress. The Hindoos in particular have in recent years been shown to have accomplished very good work in medicine itself. Charaka, a Hindu surgeon, who lived not later than 300 B.C., made some fine contributions to the medical literature in Hindostani. There were hospitals in all these countries, and these provided opportunities for the practice of surgery. Laparotomy was very commonly done by Hindu surgeons, and one of the rules enjoined by Hindu students was the constant habit of visiting the sick and seeing them treated by experienced physicians. Clinical teaching is often spoken of as a modern invention, but it is as old as hospital systems, and they go back to the dawn of history.

It is among the Greeks, however, that the most

important advances in medicine, so far as we are concerned, were made. This is, however, not so much because of what they did as from the fact that they were more given to writing, and then their writings have been better preserved for us than those of other nations. The first great physician among the Greeks was Æsculapius, of whom, however, we have only traditions. He is fabled to have been the son of Apollo, the god of music and the arts, and therefore to have been a near relative of the Muses. The connection is rather interesting, because sometimes people try to remove medicine from among the arts that minister to the happiness of man, and place it among the sciences whose application is for his profit. Medicine still remains an art, however. The temples of Æsculapius were the first hospitals, though the priests were not the only ones who practised medicine, for there were laymen who, after having served for some time in the hospitals, wandered through the country under the name of Asclepiads, treating people who were not able to go to the hospitals or shrines. These evidently, then, were the first medical schools in Greece as well as the first hospitals.

Six hundred years after Æsculapius came Hippocrates, of Cos, the Father of Medicine. He undoubtedly had the advantage of many Egyptian medical traditions and other Oriental medical sources, as well as the observations made in the hospitals and shrines of Æsculapius. He

wrote some great works in medicine that have never grown old. Young men do not read them, old men who are over-persuaded of how much progress is being made by their own generation in medicine neglect them. The busy practitioner has no time for them. The great teachers of medicine whom all the professors look up to and who think for us in each generation turn fondly back to Hippocrates, and marvel at his acumen of observation and his wonderful knowledge of men and disease. Sydenham thought that no one had ever written like him, and in our turn we honor Sydenham by calling him the English Hippocrates. Boerhaave, Van Swieten, Lancisi, the great fathers of modern clinical medicine, turned with as much reverence to Hippocrates as does Osler, the Regius Professor of Medicine at Oxford, in our twentieth century. Hippocrates wrote 2,500 years ago, but his writing is eternal in interest and value.

The famous oath of Hippocrates, which used to be read to all the graduates of medicine, well deserved that honor, for it represents the highest expression of professional dignity and obligation. There is a lofty sense of professional honor expressed in it that cannot be excelled at any period in the world's history. Among other things that Hippocrates required his adepts in medicine, his medical students when they graduated into physicians, to swear to was the following: "I will follow the system of regimen which

according to my ability and judgment I consider for the benefit of my patients, and abstain from whatever is deleterious and mischievous. I will give no deadly medicine to man, woman, or child born or unborn. With purity and with holiness I will pass my life and practise my art. Whatever in connection with my professional practice, or not in connection with it, I see or hear in the life of men which ought not to be spoken of abroad, I shall not divulge, as reckoning that all such should be kept secret. While I continue to keep this oath inviolate may it be granted to me to enjoy life and the practice of my art respected by all men in all times; but should I trespass and violate this oath may the reverse be my lot."

It is sometimes thought that after the Roman medicine, which was an imitation of the Greek (though Galen well deserves a place by himself, and Galen is usually thought of as a Roman though he wrote in Greek and had obtained his education at Pergamos in Asia Minor), there was an interregnum in medicine until our own time. This is, however, quite as much of an assumption as to suppose that the Egyptians had no medicine—as we used to until we knew more about them—or that old-time medicine is quite negligible because we were ignorant of its value. The Middle Ages had much more of medicine than we are likely to think, and just as soon as the great universities arose at the end of the

twelfth and the beginning of the thirteenth centuries, medicine gained a new impetus and flourished marvellously. These university medical schools of the later Middle Ages are models in their way, and put us to shame in many things. According to a law of the Emperor Frederick II issued for the Two Sicilies in 1241,* three years of preliminary study were required at the university before a student might take up the medical course, and then he had to spend four years at medicine, and practise for a year under the supervision of a physician of experience before he was allowed to practise for himself. The story of the medicine of this time is all the more wonderful because subsequent generations forgot about it until recent years, and supposed that all of this period was shrouded in darkness. It was probably one of the most brilliant periods in medical history. Some of the men who worked and taught in medicine at this time will never be forgotten.

Probably the greatest of them was Guy de Chauliac, a Papal chamberlain, whom succeeding generations have honored with the title of Father of Surgery. His great text-book, the "Chirurgia Magna," was in common use for several centuries after his death, and is full of surgical teaching that we are prone to think much

* For the complete text of this law, the first regulating the practice of medicine in modern times, also the first pure drug law, see Walsh's *The Popes and Science*. New York, Fordham University Press, 1908.

more modern. He trephined the skull, opened the thorax, operated within the abdomen, declared that patients suffering from wounds of the intestines would die unless these were sewed up, operated often for hernia in an exaggerated Trendelenberg position, with the patient's head down on a board, but said that many more patients were operated upon for hernia "for the benefit of the surgeon's purse than for the good of the patient." His directions for the treatment of fractures and for taxis in hernia were followed for full four centuries after his time. No wonder that Pagel, the great German historian, declared that "Chauliac laid the foundation of that primacy in surgery which the French maintained down to the nineteenth century." Portal, in his "History of Surgery," declares that "Guy de Chauliac said nearly everything which modern surgeons say, and his work is of infinite price, but unfortunately too little read, too little pondered." Malgaigne declared "the 'Chirurgia Magna' a masterpiece of learned and luminous writing."

Chauliac's * personal character, however, is even more admirable than his surgical knowledge. He was at Avignon when the black death occurred and carried away one-half the population. He was one of the few physicians who had the cour-

* For sketch of Chauliac see *Johns Hopkins Hospital Bulletin*, 1909, or *Catholic Churchmen in Science*, second series. Dolphin Press, Philadelphia, 1909.

age to stay. He tells us very simply that he did stay not because he had no fear, for he was dreadfully afraid, but he thought it his duty to stay. Toward the end of the epidemic, he caught the fever but survived it and has written a fine description of it. He was looked upon as the leader of surgery in his time, and this is his advice as to what the surgeon should be as given in the introductory chapter of his "Chirurgia Magna": "The surgeon should be learned, skilled, ingenious and of good morals; be bold in things that are sure, cautious in dangers; avoid evil cures and practices; be gracious to the sick, obliging to his colleagues, wise in his predictions; be chaste, sober, pitiful and merciful; not covetous nor extortionate of money; but let the recompense be moderate, according to the work, the means of the sick, the character of the issue or event and its dignity." No wonder that Malgaigne says of him: "Never since Hippocrates has medicine heard such language filled with so much nobility and so full of matter in so few words."

The old-time medical traditions of education which in the mediæval universities produced such men as William of Salicet and Lanfranc and Mondeville and Guy de Chauliac, persisted during the next two centuries in the southern countries of Europe, and then were transferred to America through Spain. The first American medical school was not, as has so often been said, at my own Alma Mater, the University of

Pennsylvania, which had its first lectures in 1767, while the Physicians and Surgeons of New York did not come for some ten years later and Harvard only in the following decade, but in the medical school of the University of Mexico, where the first lectures were held in 1578, and where a full medical school was organized before the end of the sixteenth century. In this medical school, which during the seventeenth century came to have several hundred students, the university tradition of the olden time was well preserved. Three years of preliminary study at the university were required before a student could take up the course in medicine, and four years of medical study were required before graduation. We have some of the text-books, and know much about the curriculum of this old medical school, and in every way it is worthy of the old university traditions.

Unfortunately our universities in what is now the United States developed very slowly. King's College (Columbia) did not become a university in the sense of having law and medical schools as well as an undergraduate department until the nineteenth century had almost begun. Harvard did not have a law school affiliated with it until the first quarter of the nineteenth century had almost run its course. The affiliations between the medical schools and the universities in these cases was only very slight, and the medical schools were entirely in the hands of the medi-

cal faculty, whose main purpose during a great part of the nineteenth century was to make medical studies as short as possible and as inexpensive as they could possibly be made for the faculty, because that left so much more of the fees to be absorbed by the historic septennate of professors who ruled and managed the university. The consequence was that during most of the nineteenth century two terms of four months each were all that was required for the diploma in medicine in most American medical schools. Three schools maintained a very high standard by requiring twenty weeks in each of two calendar years. The medical school that was considered one of the best in the country, and whose graduates obtained the highest marks in the army and navy examinations, that of the University of Virginia, required but two terms of four and one-half months each which might be taken in the same calendar year, and then gave the doctor's degree.

It may be as well to say that the doctor's degree or diploma was a license to practise. There were no State regulations for the practice of medicine, and no matter how obtained, a diploma allowed practise. As some one has well said the diploma, then, was a license to practise, not medicine, the Lord knows! but to practise on one's patients until one had learned some medicine. It is out of this slough of despond in medical education that we have climbed in the last thirty-five years. We are getting back to the old-

time university traditions. Let us hope that we shall not allow ourselves to get away from them again. There are ups and downs in medical practice and medical fashions and medical education, and all depends on the men who compose the profession at any one time and not on any mythical progress that holds them up and compels them to do better than those who went before them. The highest compliment that can be paid to American medicine and medical men is that, in spite of this handicap of education they did not utterly degenerate, but, on the contrary, somehow managed to maintain the dignity of the profession and do much good work.

It is to you to-day, entering on this profession, that we look to do your share in keeping up the dignity of the medical profession and in maintaining standards in medical education. We have a glorious tradition of 6,000 years behind us with the great men of the profession worshipped as gods at the beginning, because men thought so much of them, and remembered fondly as great masters when they came in the after-time. From I-em-Hetep through Æsculapius and Hippocrates and Galen and Guy de Chauliac and Sydenham and Boerhaave down to our own time, the men whom we delight to honor are the ones who did not work with an eye single to their own success, but who tried, above all, to do things for humanity and for the profession to which they belonged. The man who is successful as a money-

maker in his profession is only doing half his duty. He must make medicine as well as money, that is, he must by his observations help others to recognize and treat disease better than they did before; he must labor for the benefit of humanity, and, above all, he must see that there are no decadence of professional spirit and no deterioration of medical education as far as his influence can go. It is men of this kind that we hope to send forth from Fordham, and you stand in the van of them all, and I wish you God-speed.

UNIVERSITY MEDICAL SCHOOLS

"Knowledge comes but wisdom lingers."—TENNYSON, *Locksley Hall.*

"The foundation stones of the whole modern structure of human wisdom have all been laid by the architects of yesterday. Thrice wise is he who knows the quarries and builders of by-gone ages and is able to differentiate the stones which have been rejected from those which have been utilized."—ANON.

"Ideo Medico id in primis curandum, ut ab aegro circumstantias omnes accurate intelligat, intellectas consideret, ut inter curandum media illa adhibeat, quae tollendo morbo apta sunt, ne ex medicina nocumentum proveniat."—BASIL VALENTINE, *Triumphal Chariot of Antimony.*

[The physician must therefore especially take care that he understand all the circumstances of his patient very clearly, and after understanding them weigh them well, so that during his treatment he may use those means which are especially suited to control the disease, lest any harm should come from his medicine.]

UNIVERSITY MEDICAL SCHOOLS *

It affords me great pleasure to accept the invitation of your Faculty to address the graduates of a university medical school here in the Middle West. I wondered, of course, what I should talk to you about, and have come to the conclusion that as an historian of medicine any message I may have for you is likely to come from my own subject. It so happens that we are just beginning to realize that the history of medicine may have much greater significance for us than we have usually been accustomed to think, and, above all, that it may mean much in furnishing incentive for the maintaining and raising of standards in medical education. In recent years there has come a very decided improvement in medical education in the United States. It is not hard to understand that the foreigner lifts his eyebrows in surprise when he is told that most of our medical schools a generation ago required but two terms of four months each, and that there was then just beginning to be a demand for a little more complete course and better facilities. There was a large number of medical schools, turning out graduates every year with the degree

* Address to the graduates of St. Louis University Medical and Dental Schools, May 31, 1910, at the Odeon, St. Louis.

of doctor of medicine, which was a license to practise in every state in the Union, for there were no state or federal laws regulating the practice of medicine. As for preliminary requirements the less said the better. If a man could write his name and, indeed, he did not have to write it very plainly, he found it easy to matriculate in a medical school and to be graduated at the end of two scant terms of four months each. He might come from the mines, or from the farm, or from before the mast, or from the smithy, or the carpenter shop; he need know nothing of chemistry, nor physics, nor of botany, nor of English and, above all, of English grammar, and he was at once admitted to what was called a professional school and graduated when he had served his time. Practically no one was plucked. The desire of the faculty for numbers of students forbade that in most cases. The two terms in medicine were not even successive courses. The second-year student listened, as a rule, to the same lectures that he might have heard the preceding year.

We all know the reason now for this extremely low standard of medical education. Proprietary medical schools made it their one business in life to make just as much out of medical education as possible and the historic septennate of professors, or sometimes the Dean, pocketed the fees (I came near saying spoils) every year, and robbed medical American education of what-

ever possibilities it might have for the real training of young men in the science and art and practice of medicine. Perhaps the most interesting feature of this maintenance of extremely low standards in medical education, however, is the fact that in spite of it, men, or at least some of them, succeeded in obtaining a good foundation in medicine and then by personal work afterwards came to be excellent practitioners of medicine. Professor Welch said not long since: "One can decry the system of those days, the inadequate preliminary requirements, the short courses, the dominance of the didactic lecture, the meagre appliances for demonstrative and practical instruction, but the results were better than the system. Our teachers were men of fine character devoted to their duties; they inspired us with enthusiasm, interest in our studies and hard work, and they imparted to us sound traditions of our profession."

Nothing that I know is a better compliment to American enterprise and power of overcoming the difficulties of the situation than the life stories of some of the men who came from these completely inadequate schools. If with the maimed training and incomplete education given a generation ago American medicine not only succeeded in maintaining the dignity of the profession to a noteworthy degree, but also developed many men who made distinct contributions to world medicine, what will we not do now that

our medical education is gradually being lifted up out of the slough of despond in which it was and the preliminary education for medical studies set at a standard where real work of thoroughly scientific character can be looked for, from the very beginning of the medical course?

Is it any wonder, then, that those of us who have the best interests of American medicine at heart are watching with careful solicitude the movement that is now reforming medical education in this country? The one hope of medical education is, and always has been, organic connection with a university. Real University Medical Schools, that is medical schools as the genuine Post-Graduate Departments of Universities with the fine training that they give, have opened our eyes to what is needed in medical education in this country. Some of the old-time medical schools here in the United States had been connected by name with universities but this was more apparent than real, and the medical faculty ruled absolutely in its own department and throttled medical education and divided the income of the college among themselves, devoting as little as possible to equipment, to laboratories, to all that was needed for medical education.

Now has come the epoch of university medical schools in this country. I came near saying America, but we must not forget that the Spanish-American countries, having adopted their educational systems from the mother Latin country,

have always maintained the organic connection of the medical school with their universities, and as a consequence a good preliminary education, the equivalent of three years of college work with us, is required and has always been, and then some four years in the medical school and, indeed, in most of the countries five or six years and in one at least seven years of medical study required. I have thought, however, that this story of medical education in connection with universities and real university work will be especially interesting to the graduates of this thorough Western university, whose work in medicine is acknowledged as up to some of the best standards of professional attainment and whose organic connection with a great university assures not only the continuance, but the future development of medical education here along lines that shall place this among the serious progressive medical schools of the world.

The first university medical school that well deserves that name is the one that came into existence in connection with the University of Alexandria. I have been at some pains, because it is so delightfully amusing, to point out how closely the University of Alexandria resembles our modern universities in most particulars. It was founded by a great conqueror, who had gone forth to conquer the world, and having attained almost universal dominion sighed for more worlds to conquer. Then he set about the foundation of

a great city that was to be the capital of his empire, and endowed a great institution of learning in that capital that was to attract students from all over the world. When he died prematurely the Ptolemys, who inherited the African portion of his vast dominions, carried out his wishes. Money was no object at Alexandria: they put up magnificent buildings, founded a great library, bought a lot of first editions of books in the shape of author's original manuscripts, stole the archives at Athens, used Alexander's collection (made for Aristotle) as the foundation of what we would call a museum, paid professors better salaries than they received at that time anywhere else and housed them in palaces. What a strangely familiar sound all this has! Then Alexandria proceeded to do scientific work.

Euclid wrote his geometry, and, unchanged, it has come down to us and we still use it as a text-book in our colleges. Archimedes, following up Euclid's work, laid the foundation, of mechanics in his study of the lever and the screw, and of hydrostatics and of optics in his studies of specific gravity and burning mirrors and lenses. He made a series of marvellous inventions showing that he was a practical as well as a theoretic genius, who would be gladly welcomed, nay, eagerly sought for, as a member of the faculty even of a university of the highest rank or largest income in our modern times. Ptolemy elaborated the system of astronomy that had been so ably

developed by teachers at Alexandria before his time, and Heron invented his engines, which we have had as toys in our laboratories for centuries. We realized the true significance of one of them only when the turbine engine was invented and we found that the principle of it was in the toy engine of this old natural philosopher of Alexandria. They even did their literature scientifically at the University of Alexandria. We have no great original works from them in literature, but they invented comparative literature; for this making the Septuagint translation of the Holy Scriptures and doing the same for many other religious documents of the surrounding nations for comparative study.

It is rather easy to understand, then, that a medical school arose in connection with this scientific university, and that it did excellent work. The collections of Aristotle contained many illustrations which served as the basis for zoology, botany, comparative anatomy and probably even comparative physiology. The Ptolemys were very liberal and allowed dissection of the human body, so that human anatomy developed from a definite scientific standpoint better then ever before. The number of strangers in the town and the rather unhealthy climate of Egypt left many unclaimed bodies. It has always been the difficulty of obtaining bodies much more than prejudice against the violation of the human body on any general principle, that has been the reason

for the absence of human dissection in many periods of the world's history. We object to having the bodies of friends cut up, but we do not mind much if the bodies of those who are unknown to us are treated in that way. So long as men did not travel much there were few unclaimed bodies. With the advent of travel came abundant material for dissection and the Ptolemys allowed the medical school to use it.

Two great anatomists built up the structure of scientific human anatomy on the rather good foundation that had been laid on animal anatomy in the foretime. After all, the anatomy of the animal resembles that of man so much that very precious knowledge had been gained from zootomies in the previous ages. These two anatomists were Erasistratos and Herophilos. Both of them studied the brain especially, as might have been expected. For just as soon as the opportunity for dissecting man was provided, this, his most complex structure, attracted instant attention. Herophilos has named after him the *torcular herophili,* and the name he gave the curious appearance in the floor of the fourth ventricle—the *calamus scriptorius*—is still retained. He described the membranes of the brain, the various sinuses, the choroid plexuses, the cerebral ventricles and traced the origin of the nerves from the brain and the spinal cord, recognizing, according to well-grounded tradition, the distinction between nerves of sensation and motion.

He described the eye and especially the vitreous body, the choroid and the retina. He did not neglect other portions of anatomy, however, and his power of exact observation, as well as his detailed study, may be judged from his remark that the left spermatic vein in certain cases joins the renal.

Erasistratos, his colleague, was perhaps even a more successful investigator than Herophilos. He represented the best tradition of Greek medicine of the time. He had two distinguished teachers, one of them Metrodoros, the son-in-law of Aristotle. It was probably through this influence that Erasistratos received his invitation from the first Ptolemy to come to Alexandria. The scientific work of Alexandria was founded on Aristotle's collections, on his books, for his library was brought to Alexandria as the foundation of the great University Library, and then best of all on the direct tradition of his scientific teaching through this pupil of his son-in-law. Erasistratos' other great teacher was the well-known Chrysippos of Cnidos. Cnidos was the great rival medical school to that of Cos. Owing to the reputation of Hippocrates we know of Cos, but we must not ignore Cnidos.

Erasistratos' discoveries were more in connection with the heart than anything else. He came very near discovering the circulation. His description of the valves and of their function is very clear. He looked for large-sized anas-

tomoses between veins and arteries and, of course, did not discover the minute capillaries which required Malpighi's microscope to reveal them nearly 2,000 years after. Like Herophilos, Erasistratos also studied the brain very faithfully.

One story that we have of Erasistratos deserves to be in the minds of young graduates in medicine, because it illustrates the practical character of the man and also how much more important at times it may be in the practice of medicine to know men well rather than to know medical science alone. Erasistratos was summoned on a consultation to Antioch to see the son of King Seleucus. Seleucus was one of the four of Alexander's generals who, like Ptolemy, had divided the world among them after the young conqueror's death. His portion of the Eastern world, with its capital at Antioch, was probably the richest region of that time. There had been no happiness, however, in the royal household for months because the scion of the Seleucidæ, the heir to the throne, was ill and no physician had been able to tell what was the matter with him, and, above all, no one had been able to do anything to awaken him from a lethargy that was stealing over him, making him quite incapable of the ordinary occupations of men, or to dispel an apathy which was causing him to lose all interest in affairs around him. He was losing in weight, he looked miserable, he seemed really to have been stricken by one of

the serious diseases as yet undifferentiated at that time which were expressed by the word phthisis, which referred to any wasting disease.

As a last hope then almost, Erasistratos was summoned from distant Alexandria as a consultant in the case of young Seleucus. The proceeding, after all, is very similar to what happens in our own time. The head of an important department in medicine at a university is asked to go a long distance to see the son of a reigning monarch, or of a millionaire prince in industry, or perhaps a coal baron, or a railroad king, and a special train is supplied for him and every convenience consulted. A caravan was sent to bring Erasistratos over the desert to Antioch. It is such consultations that count in a physician's life. I hope sincerely that you shall have many of them and that you shall conduct them as successfully as Erasistratos this one.

The young prince's case proved as puzzling to Erasistratos for a time as it had to so many other physicians before him. Like the experienced practitioner he was, he did not make his diagnosis at once, however. Will you remember that when you, too, have a puzzling case? It is when we do not take time to make our diagnosis that it often proves erroneous. Not ignorance, but failure to investigate properly, is responsible for most of our errors. He asked to see the patient a number of times, and saw him under varying conditions. Finally, one day, while he was ex-

amining the young man's pulse—and I may tell you that Erasistratos made a special study of the pulse and knew many things about it that it is unfortunate that the moderns neglect—his patient's pulse gave a sudden leap and then continued to go much faster than it had gone before. At the same time there came a rising color to the young man's cheek. Erasistratos looked up to see what was the cause of this striking change, and found that the young wife of the King Seleucus, the prince's stepmother, had just come into the room. Seleucus, as an old man, had married a very handsome young woman, and it was evident that the young man's heart was touched in her regard, and that here was the cause of the trouble. Erasistratos did not proclaim his discovery at once. He did announce that now he knew the cause of the trouble, that it was an affection of the heart that would be cured by travel, and he proposed to take young Seleucus back with him to Alexandria. In private, very probably, he told his young patient that he had discovered his secret, and then persuaded him that absence would be the thing for him. Very probably the young man considered that cure was impossible, and with many misgivings he consented to go to Alexandria, and as has happened many times before and since, in spite of the patient's assurance to the contrary, the travel cure proved effective even for the heart affection.

I hope sincerely that you shall have as much tact, as much knowledge of men and women and as much success as this great teacher at the first of our modern university medical schools, when the great consultations do come your way, for it is easy to understand that when the young man recovered under the kindly ministrations of Erasistratos and the good effect of absence from the disturbing heart factor, Erasistratos was loaded with the wealth of the East and acquired a reputation that made him known throughout all the world of that time. There is a curious commentary on this story that I think you should also know. It is Galen who has preserved the incident for us. He does so in the book on the pulse, mainly in order to show, as he thinks, the fatuity of such observations. After giving the details he says, "Of course, there is no special pulse of love." Poor Galen, how his wits must have been wool-gathering, or how forgetful he must have been of his own youth writing in the serenity of age, or how lacking in ordinary human experience if that is his serious meaning. The older man was by far the better observer, and I hope that you shall not forget in the time to come that there are many things that affect men and women besides bacteria and auto-intoxications of various kinds and metabolic disturbances and nutritional changes. Erasistratos seems to have known very well how much the mind, or as they called it in the older terminology, and we

still cling to the phrase, the heart, meant for many a phenomenon of existence supposed to be physically pathologic and yet really only representing psychologic influences apart from the physical side of the being. I may say to you that the more you know about these old teachers of medicine the more you will appreciate and value their largeness of view, their breadth of knowledge of humanity and their practical ways.

It is no wonder that students from all over the world were attracted to Alexandria for the next three centuries because of the opportunities for the study of medicine afforded them there. After the first century of its existence not as much was accomplished as at the beginning, because what always happens in the history of medicine after a period of successful investigation, happened also there. Men concluded that nearly everything that could be, had been discovered and began to theorize. They were sure that their theories explained things. Men have persisted in spinning theories in medicine. Theories have almost never helped us and they always have wasted our time. *Observation! Observation* is the one thing that counts. Alexandria continued to have her reputation, however, and in the first century of the Christian era was the centre of medical interest. It was probably here that St. Luke was educated, and as we know now from the careful examination of the

Third Gospel and of the Acts, he knew his Greek medical terms very well. Harnack has shown us recently once more how thoroughly Luke converted the ordinary popular terms of the other Evangelists into the Greek medical terms of his time. Luke must have known medicine very well. His testimony to the miracles of Christ is therefore all the more valuable, and so the Alexandrian medical school has its special place in the order of Providence.

We are prone to think because of the curious way in which not only the histories of medical education, but of all education, have been written, that while there were some medical schools in the interval from the days of Alexandria and Rome down to the modern time, these were so hampered by unfortunate conditions that men practically did nothing in education and, above all, scientific and medical education until comparatively recent times. Nothing could well be more absurd than such an opinion. The great universities founded during the thirteenth and fourteenth centuries attracted more students to the population of the countries of the time than go to our universities to the number of our population in the present time. These universities are the model of our universities of the present time and, indeed, the history of many of the old European universities is continuous for seven centuries. They had an undergraduate department in which students were trained in grammar, rhetoric, logic, arith-

metic, astronomy, music and gymnastics, and graduate departments of law, theology and medicine. Professor Huxley, reviewing mediæval education, once said that the undergraduate education of the mediæval universities was better than our own. He doubted "that the curriculum of any modern university shows so clear and generous a comprehension of what is meant by culture as this old trivium and quadrivium did."

Their post-graduate work was just as fine as their undergraduate work. They made the law of the world in the thirteenth century, and laid the foundations on which the philosophy and theology of the after-time have been built up. Strange as it may seem to many accustomed to give credence to far different traditions, they did the same thing in medicine. Take as a single example what they did for the regulation of medical education and practice. A law of the Emperor Frederick II, issued in 1241 for the Two Sicilies (Southern Italy and Sicily proper), required three years of preliminary training in the ordinary undergraduate course at the university before a man was allowed to take up medicine, and four years at medicine before he got his degree. But even this was not all; after graduation, a year of practice with a physician was required before he was allowed to practise for himself. If he were going to practise surgery an extra year of the study of anatomy was required. But it may

be said by those who cannot persuade themselves that the Middle Ages so far anticipated us: since they knew almost nothing of medicine and surgery, what did they spend their time at during these four years? The more we know about the details of that early teaching, the more we respect them and the more we admire the magnificent work of the old-time professors and their schools.

Probably the most surprising feature of their teaching was surgery. We are rather likely to think that the development of surgery was reserved for our day. Nothing could be more untrue. The greatest period in the history of surgery, with the possible exception of our own time, is the century and a half from 1250 to 1400. What they taught in surgery we know not from tradition, but from the text-books of the great teachers which have been preserved for us, and which have been recently republished. Three men stand out pre-eminent: William of Salicet; Lanfranc, who taught at Paris, having been invited there from Italy, where he had been a pupil of William of Salicet, and Guy de Chauliac, to whom has been given by universal accord the title of Father of Modern Surgery.

There is practically nothing in modern surgery that these men did not touch in their text-books. Perhaps the most surprising thing is to find that William of Salicet, in discussing his

cases, suggested that sometimes he succeeded in obtaining union by first intention by keeping his wounds clean. Alas for the surgery of succeeding centuries, Guy de Chauliac, a greater mechanical genius than William, insisted that union by first intention was an illusion and that it could only come through pus formation. Laudable pus became the shibboleth of surgery for centuries, imposed upon it by the genius of a great man. Most men think that they think, they really follow leaders, and so we followed blindly after Guy until Lister came and showed us our mistake.

Guy was the professor of surgery down at Montpellier, and also the physician to the Popes, who for the time were at Avignon. His text-book of surgery is full of expressions that reveal the man and the teacher. He said the surgeon who cuts the human body without a knowledge of anatomy is like a blind carpenter carving wood. He insisted that men should make observations for themselves and not blindly follow others. He discussed operations on the head, the thorax and the abdomen. He said that wounds of the intestines would surely be fatal unless sewed up, and he described the technique of suture for them. His specialty was operation for hernia. There are pictures still extant of operations for hernia done about this time in an exaggerated Trendelenberg position. The patient is fastened to a board by the legs, head down, the board at an angle of

forty-five degrees against the wall. The intestines dropped back from the site of operation and allowed the surgeon to proceed without danger. Guy said that more patients were operated on for the sake of the doctor's pocket in hernia cases than for their own benefit. His instructions to his students, his high standard of professional advice, all show us one of the great physicians of all time and historians of medicine are unanimous in their praise of him.

The next great development in medicine came at the time of the Renaissance with the reorganization of the universities. In the sixteenth century Italy particularly did magnificent work in the universities, stimulated by close touch with old Greek medicine. At Padua, at Bologna, above all, at Rome, the great foundations of the modern medical sciences were laid. I need only mention the names of Vesalius, Varolius, Eustachius, Fallopius, Columbus (who discovered the circulation of the blood in the lungs), Cæsalpinus, to whom and rightly the Italians attribute the discovery of the systemic circulation nearly half a century before Harvey. These men all of them did fine work, everywhere in Italy. They were doing original investigation of the greatest value. Whenever anybody anywhere in Europe at this time wanted to do good work in science of any kind,—astronomy, mathematics, physics and, above all, in any of the medical sciences,—he went down to Italy; Italy was and continued for five cen-

turies after the thirteenth to be what France was for a scant half a century in the nineteenth, and Germany for a corresponding period just before our own time. How curiously the history of science and of medicine was written when it seems to contradict this.

Above all, what ridiculous nonsense has been talked about Papal opposition to science. The great universities of Italy in the thirteenth and fourteenth centuries had charters from the Popes. They were immediately under ecclesiastical influence, yet they did fine work in anatomy and surgery. The Father of Modern Surgery was a Papal physician. The Papal physicians for seven centuries have been the greatest contributors to medicine. The Popes deliberately selected as their physicians the greatest investigators of the time. Besides Guy de Chauliac such men as Eustachius, Varolius, Columbus, Cæsalpinus, Lancisi, Malpighi were Papal physicians. We have even a more striking testimony to the Papal patronage and encouragement of medicine and to the Church's fostering care of medical education, here in America. The first university medical school in America was not, as has so often been said, the medical school of the University of Pennsylvania founded in 1767, but the medical school of the University of Mexico, where medical lectures were first delivered in 1578. Our medical schools in this country have only become genuine university medical schools in the sense

of being organic portions of the university in the last twenty-five years. Before that their courses were brief and unworthy and no preliminary education was required.

The universities of Spanish America from the very beginning required three years of preliminary training in the university before medicine could be taken up, and then four years of medical studies. These four years became five and six years in certain countries, and at no time during the nineteenth century did the medical education of Spanish America sink to the low level unfortunately reached in the United States. The lesson of it is clear. When medical education is seriously undertaken as a university department, all is well. When it is not, the results are disastrous.

In our day and country another great awakening of university life has come and with it a drawing together in intimate union of universities and their graduate departments. Above all, the medical schools have profited by this closer connection with university work, and the prospects for medical education in the United States and a new period of wonderful progress in it are very bright. You have my hearty congratulations, then, on your graduation from a great university medical school here in the West, and I hope sincerely that you shall prove worthy of Alma Mater. You have had the privileges of university education and these involve duties.

This is ever true, though unfortunately it is somewhat seldom realized. *Noblesse oblige.* We hear much in these days of the stewardship of wealth, and do not let us forget that there is a stewardship of talent and education. Much more will be demanded of you because of your opportunities, and we look for an accomplishment on your part far above the ordinary in medical work and maintenance and uplift of professional dignity, that shall mean much for your fellows.

Remember that you are doing only half your duty if you but make your living or even make money. You are bound besides to make medicine. For all that the forefathers have done for us we in this generation must make return by a broadening of their medical views for the benefit of posterity. If you were graduates of some fourth-rate proprietary medical school, perhaps it would be sufficient if you succeeded in making your living out of your profession. Perhaps even your teachers would then be quite satisfied with you. No such meagre accomplishment can possibly satisfy those who are sending you out to-day. Above all, you must remember that your education is not for yourself, but for the benefit of others as well. If, somehow, its influence becomes narrowed so as only to affect yourself and your intimate friends then it is essentially a failure. You must not only live your lives for yourselves, but so that at the end of them the community shall have been benefited and medicine

and its beneficent mission to mankind shall be broader and more significant because you have lived. With this message, then, I welcome you as brother physicians and bid you God-speed in your professional work.

THE COLLEGE MAN IN LIFE

"Non scholae sed vitae discimus."—SENECA, *Epist.*, 106.
[We learn for life not for school.]

"Nec si non obstatur, propterea etiam permittitur."—CICERO, *Philip.*, xiii, 6.
[And because a thing is not forbidden that does not make it permissible.]

"Ubicunque homo est ibi beneficio locus est."—SENECA, *De Vita Beata*, 24.
[Wherever man is there is room to do good.]

"Then let us not leave the meaning of education ambiguous or ill-defined. At present, when we speak in terms of praise or blame about the bringing up of each person, we call one man educated and another uneducated, although the uneducated man may sometimes be very well educated for the calling of a retail trader, or of a captain of a ship, and the like. For we are not speaking of education in this sense of the word, but of that other education in virtue from youth upwards, which makes a man eagerly pursue the ideal perfection of citizenship and teaches him how rightly to rule and how to obey. This is the only training, which upon our view would be characterized as education; that other sort of training, which aims at the acquisition of wealth or bodily strength, or mere cleverness apart from intelligence and justice, is mean and illiberal, and is not worthy to be called education at all. But let us not quarrel with one another about the name, provided that the proposition which has just been granted hold good: to wit, that those who are rightly educated generally become good men. Neither must we cast a slight upon education, which is the first and fairest thing that the best of men can ever have, and which, though liable to take a wrong direction, is capable of reformation. And this work of reformation is the great business of every man while he lives."—PLATO, *Laws* (Jowett), Vol. IV, p. 174. Scribner, 1902.

THE COLLEGE MAN IN LIFE *

GENTLEMEN OF THE GRADUATING CLASS: The custom is, I fear, for the orator who addresses the graduating class to talk over the heads of those who have received their degree to the larger audience who are assembled for the academic function. Now, that I do not propose to do. What I have to say is to you. My message is meant entirely for you. Since your friends are present I have to raise my voice so that they shall hear what I have to say, but I consider that they are here only on sufferance and that I am here to say whatever I can that may mean something for you in the careers that are opening up to you. Now, I am not of those who think that the main purpose of the eld is to give advice to the young. Man is so fashioned that he wants to get his own experience for himself. It is true that "only fools learn by their own experience," wise men learn by that of others. But then we have divine warrant for saying that there used to be a goodly proportion of fools in the world and human experience agrees in our own time that not all the fools are dead yet. Our advice may not be taken in all its literalness; that would be too much to

* This was the address to the graduates at Boston College, June 22, 1910.

expect, but it has become an academic custom to give it, in the hope that it will be a landmark, perhaps an incentive, it may be a warning, surely some time a precious memory in the time to come.

Few men who ever lived were less likely to think that their advice might mean very much than dear old Bobbie Burns, to whom one of your number referred, and yet some time I hope that in some serious mood you'll read and think well on the poetic epistle of advice to his youthful friend. There are some lines at the beginning of it that have haunted me at times these many years when I have been asked to address studious youth at the commencement, as our term for the occasion so well declares, of their real education in the post-graduate courses of that University of Hard Knocks which valedictorians at this season of the year are so prone to call the cold, cold world. The Scottish ploughman bard said in the choice English he could so well assume on occasion:

> "I long hae tho't, my youthful friend,
> A something to hae sent you,
> Though it may serve no ither end
> Than as a kind memento;
> But how the subject theme may gang,
> Let time and chance determine;
> Perhaps it may turn out a sang
> Perhaps turn out a sermon."

One thing is sure, whatever I shall say to you shall not be a song, though, alas! addresses

LIBRARY OF THE UNIVERSITY OF CALIFORNIA

of advice are prone to sound like sermons. Yet the sermon, after all, in the old Latin word *sermo,* is only a discourse, and I am going to make mine as brief as possible. It shall, I hope, serve to round out some of the things that you yourselves have been saying with regard to Catholics and social works and, above all, Catholic college men in social works.

We are rightly getting to estimate the value of a man in our time in terms of what he accomplishes for others much more than for himself. Almost any one who devotes himself with sufficient exclusiveness to the business of helping himself will make a success of it, though some may doubt of the value of that success. What is difficult above all in our time, when the spirit of individualism is so rampant, is to make a success of helpfulness for others while making life flow on with reasonable smoothness for one's self. I do not hope to be able to impart to you the precious secret of how surely to do this, but something that I may say may be helpful to you in leading a larger than a mere selfish life, so that when the end shall come, as come it must, though one would never suspect it from the ways of men, the world will be a little better at least because you have lived.

Education has become the fetish of the day and the shibboleth by which the Philistine is recognized from the chosen people of culture and refinement. Popular education has become the

watchword of the time, and all things are fondly hoped for and confidently promised in its name. We are somewhat in doubt as to the mode of education that will be surely effective for all good and we are not quite certain as to how the results are exactly to be obtained, but education is to make the world better; to get rid gradually, yet inevitably, of the evil that is in it; to lift men up to the higher plane of knowledge where selfishness is at least not supposed to exist, or surely to be greatly minimized, where crime, of course, shall disappear, and where even the minor evils so hide their diminished heads that the millennium can not be far distant. It is true that some of these glorious promises seem long in fulfilment to those who are a little sceptical of the influence of particular forms of education that are now popular, but, of course, the response to that is, that so far we have not had the time to have the full benefit of education exert itself.

At the end of the eighteenth century the Encyclopedists in France, in their great campaign for the diffusion of information among the people and the spread of what they were pleased to call education, though some of us are prone to think that they hopelessly confused the distinction between education for power and education for information, confidently promised that when men knew enough, poverty, of course, would disappear and in its train would go all the attendant evils,

vice and crime and immorality, and with them, of course, unhappiness would disappear from the world. That is considerably over a century now, but we have not found it advisable as yet to do away with courts of law, nor jails, nor policemen, nor any of the mechanism of the law for the suppression of crime and immorality. Indeed, there are those who are unkind enough to say, that we now have to make use of more means than ever in proportion to the population for the suppression of vice and crime, and that they are more emphatically demanded even than at the time of the Encyclopedists. As for unhappiness and poverty, recent investigations in our large cities show so large a proportion of people willing yet unable to obtain a decent living wage, that it is quite startling. Our insane asylums are growing much more rapidly than the population, and not a few of the inmates are there because of immorality. Suicide is on the increase faster than the population and unfortunately the greatest increase is noted in the younger years. It is between fifteen and twenty-five that suicides are multiplying.

Of course the answer to this is, that education is not as yet carried to that extent among the great mass of people which would enable it to have its full beneficial effects. Our common school education is not enough to bring people under the beneficent influence of this great civilizing factor for the development of mankind.

Educators would urge that it is the higher education which serves to obliterate the ills that human flesh is heir to, moral as well as physical, as far, of course, as that is possible in so imperfect a world as this. If we could but extend the advantages of the higher education, of college and university training to the majority of the people, then say the advocates of education as a panacea for human ills, we would surely have that approach to the millennium which intellectual development by the diffusion of information can and must give.

It is worth while analyzing that proposition a little and applying it to present-day conditions as we know them. After all we have been turning out a large number of those who have had the benefit of the higher education from our colleges and universities during the last generation or so. They have gone out by the thousand to influence their fellows and presumably to be shining lights for profound improvement of life, striking examples that surely will prove an incentive and a source of emulation to others to do the right, avoid the wrong, be helpful instead of selfish and, in general, show the world how much education means for the happiness of all. There is a slang expression familiar in New York just now that you in New England may not know, for I understand that even the owls near Boston do not say "to-whit-to-whoo" but "to-whit-to-whoom," that may be quoted here: "Some men are born good,

some make good and some are caught with the goods on them." Not all of the graduates of colleges and universities were born good, of course. I wonder what we shall find with regard to the other two phases of existence. There are not a few who are critically perverse enough to say that, while many have made good, too many have been caught with the goods on them.

Let us take the subject that is so strikingly brought before us in our everyday life in recent years, the question of political corruption. Of course it is to be presumed that it is the non-college men who are both corruptors and corrupted. It is, of course, just as confidently to be presumed, on the other hand, that it is the college men who are the forerunners in all the exposures of recent years. Alas! for human nature, it is just the contrary. The leaders in big corruption, the mainstays of what has come to be called "big political business," have nearly all been college men. This has been true in California, in Missouri, in Pennsylvania, in New York, in Illinois. It would be easy to add other states, but I am only mentioning those where investigations are not yet forgotten, though we American people have cultivated a really marvellous power of forgetting. The states are sufficiently far apart from one another to make it very clear that the condition is not limited to a particular locality but is practically universal. In recent years we have been getting closer to the

man higher up. In a great many of the cases, I should say in a majority of them, he has proved to be a university man, and if not, then university men have been his right hands in the accomplishment of evil. The boards of directors of corporations, life insurance, fire insurance, railroads, great industries and manufactures, even banks, who have known that laws were being violated and who have not cared because it was money in their pockets, have in many cases, perhaps even in the majority of cases, been college men. Certainly college graduates have not proved to be the little leaven that would leaven the whole mass for righteousness.

In the even more dangerous evils of our time that have risked the very existence of democratic government, in the imposition on the people by the privileged classes of indirect taxes and tariffs that make life hard for the poor, but add largely to the wealth of the rich, college men have only too often been the active agents. Without their active co-operation certainly these crying injustices to the poor would never have been accomplished. They have often been adding useless millions to useless millions simply for the game, not caring how much the poor had to suffer. They have been accumulating at the expense of the working classes what Governor Hughes of New York so well called, not long since, a corruption fund for their children. They have been the prime factors in many agencies

for evil and they have not been the guardians of the rights of others, the weaker ones, that we have a right to expect of them. In the awful evils that have been exposed as a consequence of the fellow-servant doctrine and the contributory negligence principle at law, which have been the root of so much suffering in the world, college men have not helped to point out evils and organized for the solution of them, though they have been closely in contact with all the problems of them as judges, lawyers, directors of railroad companies, and industrial concerns. In general, while they have been in a position to know and alleviate some of the worst ills of our social system, they have done very little. They helped to bind fetters. It is men of much lower social station and education who have awakened us.

The investigations of recent years as to the condition of wage-earners have shown us many unfortunate evils. It was known that one in four of the population in London was living in dire poverty and this was thought to be due to the special circumstances in London. An investigation of York in England showed, however, that smaller towns, even cathedral towns, that were supposed to be almost without poverty, were hot-beds of it and were nearly as bad as London. Then, we took the flattering unction to our souls that these were altogether foreign conditions. Such investigations as we could make in New York, however, showed that we were little if any

better than the reports from England and Germany revealed abroad. Then it was said that the large city, that brood-oven of vice and misery, was responsible. Pittsburg, for instance, set up the claim that while great fortunes were made there the workmen were paid better wages than any place else in the world. Alas for the fallibility of human judgment in social affairs! The Pittsburg Survey was made and it was found that while a few of the better-class workmen were paid very well, the great mass of the workmen were awfully underpaid, and it was impossible for the majority of them to live decently on what they received. Further investigations into industrial conditions have only emphasized the conclusions obtained from the Survey.

Human life has become very cheap in this country. A prominent clergyman said not very long ago that it was safer to be a murderer in the United States than a brakeman. The expression is true if the proportion of brakemen who lose their lives to murderers who lose theirs in this country is taken. We are careless of the lives of the honest workman, and sentimentally over-careful of the lives and comfort of the criminal. Every now and then there are inevitable reactions against this laxity of the law, and as a consequence, while Canada has no lynchings and there are none in England, while peoples of our stock have no need to appeal to force, we lynch many more than we execute in this

country. The leaders of many of the mobs, as the directors of the industrial companies who knowingly allow the waste of life to go on, have had the benefit of our American education, such as it is. Educated people are responsible for things that are and unless they meet their responsibilities there will be no improvement.

Some of these abuses have risen to a climax. Not long ago a story was told that illustrates, as it seems to me, some present-day feelings very well. A great steel company having a contract for a bridge in the Far East, was rushing the last steel beams for the completion of the contract. America is noted for its marvellous power to do work rapidly that other countries take time for. There was a heavy penalty attached if they did not complete the contract on time. A fast steamer was waiting in New York harbor all ready to take this last consignment out with it. A special train was standing in the yards of the steel plant, to be rushed to New York just as soon as the beams were completed. In the midst of all the hurry and bustle a workman got his foot caught in the huge crane which transports the immense beams from one portion of the plant to the other. An examination of the manner in which he was caught showed clearly that he could not be released without taking the crane apart. That would mean that thirty-six hours would have to be spent in the mechanical handling of that crane. If that were done it would be

quite impossible to make the shipment on time, so closely was the period of completion calculated. Not only was there a heavy money penalty, but there would be a decided loss of American prestige.

The workman who was caught was only a foreigner. He was only getting $1.25 a day. Just one thing was to be done evidently, because that steamer had to sail on time and that freight train had to get out the next morning. The other foreign workmen were put out of the shops, only the confidential men were left, an ambulance was summoned; as it appeared in sight the crane was run over the portion of the foot that was caught, the man was removed to the care of the surgeon, his wound was dressed at the hospital, the contract was completed on time and American enterprise and power to do things faster than all the world was vindicated.

We are making money. In the meantime the directors of companies under whom such things are done are mainly college men. Whether they feel it or not they are personally responsible for everything that happens in their business, for it is their business by which human life is sacrificed or human suffering increased, or human morality deteriorated. Probably the majority of the stockholders in the companies are college men. Some of them are college women. They are deriving incomes from forms of injustice, from conditions that cause human suffering that

might be avoided. They are, whether they know it or not, committing one of the crimes that calls to heaven for vengeance—defrauding laborers of their wages; because to pay a man less than a decent living wage is to defraud that laborer of his wages. No man has a right to go into the labor market and buy labor as cheaply as he can. Men must live, they must support their families, and to compel them to take less than a decent living wage is to hold them in slavery. Every man who derives an income from such sources must know whether there is injustice at work or not in whatever he benefits by. It is easy to plead ignorance, but the ignorance is no justification. When we take money from something we must know that that money has no taint of injustice about it. There is a startling passage in the Scriptures that I have often thought should be repeated more frequently in our time. It is, "From the sins we know not of, O Lord deliver us."

There are many things that are done for the educated rich in our time, things that are full of injustice, yet from which the rich derive great benefits for which they will be held responsible. I cannot see it else. We hear much in our time of the stewardship of wealth, of the fact that if a man has much more money than others he is bound thereby to do more good with it, just inasmuch as he has superfluous means must he accomplish not only actually more but proportion-

ately more than those who are less wealthy around him. What is true thus of material wealth is even truer of intellectual wealth. The man who has more education than his neighbors is bound thereby to be helpful to his neighbors, to uplift them—how much one hesitates to use that much-abused word,—to help solve their problems, to make life happier for them; he is bound to use his faculties, God-given as they are and developed by intellectual opportunities, not for himself alone, but for all those around him.

Unfortunately recent generations of college men have not taken this responsibility seriously, or have not seen the duty that lay before them and the burden imposed on them by the very necessity of conditions. As a consequence they have often been leaders in evil. They have almost invariably been protagonists of selfishness and of individualism. So long as they have gotten much out of life they have not cared whether others have had the paths for even reasonable happiness and some opportunities in life made smooth. Only too often they have been a stumbling block in the road for others less educated than they. They have been the men higher up, the bribers who are ever so much worse than the bribed, the company directors who have turned aside and seen evil and injustice and pretended in smug propriety that it was no affair of theirs, or perhaps have said in self-justification—and such self-justification!—that if they did not do it

others would; the wealthy men who have used every means to get around the law to oppress the poor, to add useless wealth to useless wealth at the cost of others, even at the risk of subverting liberty, overturning government and ruining this latest experiment in democracy. I am not a muckraker, but we cannot hide from ourselves and we must not miss the real meaning of the events in the life around us as it really is.

When I think of the situation I am prone to compare with it other generations of college men and what they accomplished. History is not worth while if it tells us only of the past. It is of no more value than any other story, real or fictitious. History is significant only when the lessons of the past are valuable to the present. We are prone to think of education as influencing deeply only recent generations. Let me try and tell you briefly the story of some generations of college men who accomplished things that it will be worth while for us to consider to-day.

When the universities came into existence in the early thirteenth century social conditions were about as bad as can well be imagined. The incursions of the Goths had rubbed out all the old Roman law and the customs of the various nations had been obliterated in the disorder of the migration of the nations, when might absolutely made right. Gradually out of the inevitable lawlessness of the Dark Ages the Church, by her beneficent influence, brought the beginnings of

law and order so far as barbarous peoples could be lifted up. In the sixth century there was nearly everywhere in Europe social chaos. During the next centuries came the gradual uplift. Christianity in Ireland did much even in the preceding century, and then helped in the regeneration of Europe in the succeeding centuries. Charlemagne helped greatly, as his name chronicles, and Alfred, well deserving of the name the Great, carried on his work. In the tenth century everywhere the dawn of better things was to be seen. In the eleventh century organization of civil rights begins to make itself felt; in the twelfth century the universities were coming into existence; and then with the thirteenth century there was a great rejuvenescence of humanity in every department, but, above all, in the social order. Under feudalism men had no rights of themselves except such as were conferred on them by some external agency. In the thirteenth century the essential rights of man begin to make themselves felt and find confident assertion.

It is not hard to trace the steps of the development. Magna Charta was signed in 1215. The First English Parliament met in 1257. The representative nature of that parliament became complete in the next twenty years. The English Common Law was put into form about the beginning of the last quarter of the century and in 1282 Bracton published his great digest of it. The principle there shall be no taxation without

representation, our own basis for the Declaration of Independence five centuries later, was proclaimed as early as 1260 and was emphasized by the great Pope Boniface VIII at the end of the century. Early in the century, the great Lateran Council decreed that every diocese in the world should have a college and that the Metropolitan Sees at least should have such opportunities for post-graduate study as we now call universities. The first great Pope of the century, Innocent III, laid the foundation of a great City Hospital in Rome and required that every bishop throughout the world should have one in his See and that the model of it should be that of the Santo Spirito Hospital in Rome. Leprosy was an epidemic disease among the people, somewhat as tuberculosis is now; measures were taken for the segregation of lepers, leper hospitals were built for them outside of the town, and these great generations solved a problem in hygiene as difficult as is ours with regard to tuberculosis.

Above all, the rights of the people were assured to them. At the beginning of the century probably the most striking thing among the population of the various towns, if a modern had a chance to visit them, would be the number of the maimed and the halt and the blind. We would be apt to wonder where were the industrial and manufacturing plants responsible for all this maiming of the people, and look in vain for the belching chimneys of factories or trains. It was

another form of selfishness that produced cripples in the twelfth century. Punishment was by maiming. For offences against property a man lost an eye, or a hand, or a leg. Very often the offences were of a kind that we would resent punishment for in the modern time. If a man were caught poaching on a nobleman's preserves of game, and sometimes it was the hunger of his children that drove him to it, he lost a hand. For a second offence, he lost an eye. For failures to pay various taxes, if the offence were repeated, maiming was likely to be the consequence. All this was in as perfect accordance with law as our fellow-servant or contributory-negligence doctrines. So that the sight of the maimed person might deter others from following this example of recalcitrancy, it was hoped that these cripples would not die, though in the imperfect surgery of the time they often did. Always the selfish pleasures of the upper classes so-called, when they are thoughtless, mean the loss of all possibilities of happiness for the lower classes. The ways of it all may be different from age to age, the results and the responsibility are always the same.

In the thirteenth century all this was changed. St. Louis of France sent one of his greatest noblemen who had unreasonably punished student poachers on a penitential pilgrimage to the Holy Land and inflicted a heavy fine, and all notwithstanding the protest of the most powerful nobles

of his kingdom whose rights were invaded. How we do always hear about the invasion of the rights of the entrenched classes. In England men, even men without any patent of nobility or clerical privilege, began to have rights and others had duties towards them. Above all, men were given opportunities to bring out what was best in them. The great cathedrals were built, the great monasteries, some of the greatest castles, some of the fine colleges at the universities. Many of the municipal buildings were erected in the glorious architecture of the times. At these men were employed in what is probably the happiest work that a man can do. They had the chance to express themselves in the beautiful achievements of their hands. The village blacksmith made gates, and locks, and bolts, and hinges for cathedrals that are so beautiful that all the world has wondered at them ever since. The stained glass is the finest ever made. The illuminated books are beautiful beyond description, the handsomest of all times. The needlework of the vestments stands out as the most beautiful in history. The men and women who did these things were happy in the execution of beautiful works of art, and as the population was only scanty a large proportion of them were closer to beautiful things than the world has ever known.

Blessed is the man who has found his work. These men had found their work and were happy. Instead of going out to the deadly routine of

work they did not like, but that they had to do, because they must earn enough so as to get bread enough to eat for themselves and family, so that they might live and go out and work once more to-morrow and to-morrow, and so on to the end of recorded time, the workman dreamt of the beauty that he might express; went out hoping to achieve it; failed often but still hoped, and hope is life's best consolation; came away reluctantly, thinking that surely he would accomplish something on the morrow. It is the difference between mere routine work and the handicraftsmanship that satisfies because it occupies the whole man. Is it any wonder that our workman is discontented; is it any wonder that the England of that time should be called merry England and the France and Italy gay France and Italy?

All this organization of the workmen was accomplished by the university men of the time. They were mainly clergymen, but they had in them not only the wish, but the faculty to help those around them, and so there arose the beautiful creations of that time in art, architecture, literature and political freedom which did so much for the masses of the people. There were more students at the universities at the end of the thirteenth century to the population of the various countries of Europe than there are at the present time. That seems impossible, but so do all the other achievements of the thirteenth century,—their cathedrals, their arts and crafts, their

universities, their literature,—until you go back to study them. There is absolutely no doubt about these statistics. These university men were trained to self-government and to the government of others in the university life of the time. They took that training out with them, not for selfish purposes alone, but for the help of others. What they accomplished is to be found in the social uplift that followed. There is scarcely a right or a development of liberty that we have now that cannot be found, in germ at least, often in complete evolution, in the thirteenth century. The Supreme Courts of most of our states still make their decisions following the old English common law which was laid down in that century.

But it will be said, while so much was done for the workman, have we not heard that his wages were a few cents, almost nothing, and that his hours were long and he was little better than a slave? Only the first portion of this has any truth in it. He did get what seems to us a mere pittance for his day's wages. As pointed out by M. Urbain Gohier, the French socialist, when he visited this country to lecture a few years ago, the workmen of this time had already obtained the eight-hour day, the three eights as they are called, eight hours of work, eight hours for sleep and eight hours for themselves. Besides they had the Saturday half-holiday, or at least, after the Vesper hour, work could not be required of them, and there was more than one holy-day of

obligation every two weeks, on which they did not work, and on the Vigil of which work ceased at four o'clock. As for their wages, by Act of Parliament they got fourpence a day at the end of the century and this does not seem much, but the same Act of Parliament set the minimum wage and the maximum price that could be charged for the necessities of life. A pair of hand-made shoes could be bought for fourpence, and no workman can do anything like that for a day's wage at the present or usually for more than double his daily wages. A fat goose cost but twopence halfpenny, and when the father of a family can buy two fat geese for his daily wages, there is no danger of the family starving. Our wages are higher, but the necessities of life have gone up so high that the wages can scarcely touch them.

In the parliament that passed these laws the greater proportion were college men. I suppose probably three-fourths of the members of both houses had been at the university. Now that the question of the abolition of the House of Lords is occupying much attention, we sometimes hear of it as a mediæval institution. It is spoken of as an inheritance from an earlier and ruder time. I wonder how much the people who talk thus know about the realities. They must be densely ignorant of what the House of Lords used to be. At the present moment there are in the English House of Lords 627 members, only

75 of whom do not owe their position directly or solely to the accident of birth. Even about half of this seventy-five can only be selected from the hereditary nobility of Scotland and of Ireland. In the Middle Ages it was quite different. Until the reformation so-called the Lords Spiritual formed a majority of the House of Lords. They consisted not only of the bishops but of the abbots and priors of monasteries and the masters of the various religious and knightly orders. This upper chamber of the olden time was elected in the best possible sense of the word. They were usually men who had risen from the ranks of the people and who had been chosen because of their unselfishness to be heads of religious houses and religious orders. There were abuses by which some of these Lords Spiritual obtained their places by what we now call pull, but the great majority of them were selected for their virtues, and because they had shown their power to rule over themselves had been chosen to rule over others.

They were men who could own nothing for themselves and families, and in whom every motive, human and divine, appealed to make life as happy as possible for others. They were all of them university men. Compare for a moment the present House of Lords with that House of Lords and you will see the difference between the old time and the present. No wonder England was merry England, no wonder historian

after historian has declared that the people were happier at this time than they have ever been before or since, no wonder men had leisure to make great monuments of genius in architecture, in the arts and in literature. No wonder the universities, in the form in which they have been useful to mankind ever since, were organized in this century; no wonder all our rights and liberties come to us. Great generations of the university men nobly did their work.

Young men, you are graduating from a college that is literally a lineal descendant of those old-time universities. You have had the training of heart and of will as well as of mind that was given to these students of the olden times. You have been taught that the end of life is not self, but that life shall mean something for others as well as yourself, that every action shall be looked at from the standpoint of what it means for others as well as for yourselves, and that you shall never do anything that will even remotely injure others.

You are not only going to lead honest but honorable lives. You are going to be true to yourselves first, but absolutely faithful to others. They are telling a story in New York now that, perhaps, some of you have heard. It is of the young man who had graduated at the head of his class at the high school and delighted his old father's heart. He kept up the good work, and came out first in his class at college. Then, when

he led a large class at the law school, you can understand how proud the old gentleman was. Tom came home to practise law in a long-established firm where there was an opening for him. Some six months later he said, one day, to his father, "Well, I made $10,000 to-day," and the old gentleman said, "Well, Tom, that is a good deal of money to make. I hope you made it honestly." The young man lifted his head and said, "You can be sure that I would not make it dishonestly." "That is right," the old man said. "Tell us how it came about." Then Tom told how he knew that a trolley line was going to run out far from town and that he had secured an option on some property through which it was going to pass. "You know old Farmer Simpson out on the Plank Road?" he said. "His boys have left him and gone to the city; he cannot work his farm any longer himself, and he cannot hire men for it, and he wants to get rid of it. I got positive information yesterday through one of our clients that a trolley line is going out through that farm. When I went out to see the old man he knew me at once, spoke about you, and when I offered to try to sell the farm for him and suggested the advisability of signing an option on it to me at a definite figure, so that I may be able to close the price with any one who wanted it, he signed at once at a ridiculously low figure because, though, as he said, he did not care to sign the papers for lawyer folk,

he knew I was different. I have got the farm at so low a price that $10,000 is the smallest profit I can look for. I think I will get that profit out of the company for the right of way, and then I will have the rest of the farm for myself. It will make a mighty nice country place."

Then there was a pause. The old gentleman did not lighten up any over the story, as Tom seemed to think he would. After a minute's silence the old man said, "Well, Tom, that was not what I sent you to college and law school for, to come out here and take advantage of my old neighbors. I thought that you would be helpful to us all, and that there would be more of happiness in the world because of your education. You may call that transaction honest, and perhaps it is legal, but I know that it is dishonorable. Tom, if you don't give Farmer Simpson back his option I do not think I want you to live here with me any more. Somehow I couldn't feel as if I could hold up my head if ever I passed Farmer Simpson and his wife, if you did. You may act as his attorney if you will and take a good fair fee for it, but you must not absorb all the profits just because the old man is in trouble and is glad to trust an old neighbor's son."

Of course Tom's father was dreadfully old-fashioned and out of date. Of course there are some people who will say that this sort of thing is quixotic. Now, this sort of thing is what higher education should mean, and does mean, in a

Catholic college. Your principles are not taught you for the sake of exercises of piety, nor attendance at religious duties. These you have got to do anyhow, but they are meant to inflow into every action of your life and to make the basic principle of them all, " Thou shalt love thy neighbor as thyself."

You are graduating from a Catholic college with high aims, you have had many advantages, more than are accorded usually in our time to men of your years in the training of heart and will as well as intellect, and much is expected of you. You are rich in real education and a stewardship of great intellectual and moral wealth is given over to you, and you must be better than others and be, above all, ever helpful to others. Your education was not given for your benefit, but for that of the community. Your neighbors are all round you. See that at the end of your life they shall all be happier because you have lived. If you do not do so you shall sadly disappoint the hopes of your teachers and, above all, you shall be false to the trust that has been confided to you.

Pass on the torch of charity. Let all the world be dear to you in the old-fashioned sense of that dear old word charity, not merely distantly friendly in the new-fangled sense of the long Greek term philanthropy. Be just while you are living your lives and you will not have the burden of philanthropy that so many rich men are now complaining of in your older years, and, above all,

you will not have the contempt and aversion of those who may accept your bounty, but who know how questionably you acquired the means of giving it and are not really thankful.

I have done but for just one word. Be just and fear not. If you will be just in your dealing with men, you will have no need for further advice and no need for repentance. I thank you.

NEW ENGLANDISM

"It isn't so much the ignorance of mankind that makes them ridiculous as the knowing so many things that ain't so."—JOSH BILLINGS, *writing as "Uncle Esek" in the "Century."*

NEW ENGLANDISM *

THERE is a little story told of a supposed recent celestial experience, that seems, to some people, at least—perhaps it may be said without exaggeration, to most of those alas! not born in New England—to illustrate very well the attitude of New Englanders, and especially of the Bostonese portion of the New England population, towards all the rest of the world and the heavens besides. St. Peter, the celestial gate-keeper, is supposed to be disturbed from the slumbers that have been possible so much oftener of late years because of the infrequent admissions since the world has lost interest in other-worldliness, by an imperious knocking at the gate. "Who's there?" he asks in a very mild voice, for he knows by long experience that that kind of knocking usually comes from some grand dame from the terrestrial regions. The reply, in rather imperative

* The material for this was collected for a banquet address in Boston on Evacuation Day, 1909, before the Knights of Columbus. It was developed for various lectures on the history of education, in order to illustrate how easy it is to produce a tradition which is not supported by historical documents. In its present form it appeared as an article in the *West Coast Magazine* for July, 1910, at the request of the editor, Mr. John S. McGroarty, with whom, more years ago than either of us care to recall now, I had learned the New England brand of United States history at a country school.

tone, is, "I am Mrs. Beacon from Boston," with emphasis on the Boston, "Well, madam," Peter says in reply, "you may come in, but," he adds with a wisdom learned doubtless from many previous incidents of the same kind, "you won't like it."

Of course, the thoroughgoing admiration of New England people, and especially of Bostonians, for all that is New England, and, above all, all that is Boston, has been well recognized for a long while and has not failed of proper appreciation, to some degree at least, even in New England itself. To Oliver Wendell Holmes we owe that delightful characterization of it in the "Autocrat of the Breakfast Table," "Boston State House is the hub of the solar system. You could not pry that out of a Boston man (and *a fortiori* I think it may be said out of a Boston woman) if you had the tire of all creation straightened out for a crowbar." James Russell Lowell expressed the same idea very forcibly in other words in some expressions of his essay on "A Certain Condescension in Foreigners," that have been perhaps oftenest quoted and are dear to every true New Englander's heart. Of course, he meant it a great deal more than half in jest, but who of us who know our Down Easterners doubt that most of them take it considerably more than half in earnest? Their attitude shows us very well how much the daughter New England was ready to take after mother England in

the matter of thinking so much of herself that she must perforce be condescending to others.

Lowell's expression is worthy to be placed beside that of Oliver Wendell Holmes for the guidance of American minds. They are keys to the situation. "I know one person," said Lowell, "who is singular enough to think Cambridge (Mass.) the very best spot on the habitable globe. 'Doubtless God could have made a better, but doubtless he never did.'" It only needed his next sentence fully to complete the significance of Boston and its academic suburb in the eyes of every good Bostonian. "The full tide of human existence may be felt here as keenly as Johnson felt it at Charing Cross and in a larger sense."

Of course there is no insuperable objection to allowing New Englanders to add to the gayety of nations in this supreme occupation with themselves, and we would gladly suffer them if only they would not intrude their New Englandism on some of the most important concerns of the nation. But that is impossible, for New Englandism is most obtrusive. It is New England that has written most of the history of this country and its influence has been paramount on most of our education. It has supplied most of the writers of history and moulded most of the school-teachers of the country. The consequence has been a stamping of New Englandism all over our history and on the minds of rising generations for the better part of a century, with a

perversion of the realities of history in favor of New England that is quite startling when attention is particularly directed to it.

The editors of the "Cambridge Modern History," in their preface, called attention to the immense differences between what may be called documentary and traditional history. They declare that it has become "impossible for historical writers of the present age to trust without reserve even to the most respected secondary authorities. The honest student finds himself continually deserted, retarded, misled, by the classics of historical literature, and has to hew his own way through multitudinous transactions, periodicals, and official publications in order to reach the truth." Most people reading this would be prone to think that any such arraignment of American history, as is thus made by the distinguished Cambridge editors of history in general, would be quite out of the question. After all, our history, properly speaking, extends only over a couple of centuries and we would presumably be too close to the events for any serious distortion of them to have been made. For that reason it is interesting to realize what an unfortunate influence the fact that our writers have come mainly from New England and have been full of the New England spirit, has had on our American history.

Every American schoolboy is likely to be possessed of the idea that the first blood shed in the Revolution was in the so-called Boston Massacre.

It is well known that that event thus described was nothing more than a street brawl in which five totally unarmed passers-by were shot down without their making the slightest resistance, as an act of retaliation on the part of drunken soldiers annoyed by boys throwing snowballs at them. This has been magnified into an important historical event. Two months before it, however, there was an encounter in New York with the citizens under arms as well as the soldiers, and it was at Golden Hill on Manhattan Island and not in Boston that the first blood of the Revolution was shed. Miss Mary L. Booth, in her "History of the City of New York," says: "Thus ended the Battle of Golden Hill, a conflict of two days' duration, which, originating as it did in the defense of a principle, was an affair of which New Yorkers have just reason to be proud, and which is worthy of far more prominence than has usually been given it by standard historians. It was not until nearly two months after that the Boston Massacre occurred, a contest which has been glorified and perpetuated in history, yet this was second both in date and in significance to the New York Battle of Golden Hill."

Practically every other incident of these times has been treated in just this way, in our school histories at least. Every American schoolboy knows of the Boston tea party, and usually can and does tell the story with great gusto because

it delights his youthful dramatic sense. Not only the children, but every one else seems to think that the organization of the tea party was entirely due to the New England spirit of resistance to "taxation without representation." How few of them are taught that this destruction of the tea had been definitely agreed upon by all the colonies and that it was only by chance that Massachusetts happened to be first in the execution of the project. My friend, Dr. Thomas Addis Emmet, in his article on "Some Popular Myths of American History," in the *Magazine of History* (February, 1905), has stated this aspect of the question very forcibly. "Previous to the arrival of the ships in Boston, concerted action had been agreed upon, as has been already shown, in regard to the destruction of the tea, from Charleston, S. C., to Portsmouth, N. H. The people of Philadelphia had been far more active and outspoken at the outset than they of Boston, and it was this decisiveness which caused the people of Boston to act, after they had freely sought beforehand the advice and moral support of the other colonies."

It would be utterly unjust to limit the movement which culminated in the Boston Tea Party to any one or even several of the colonies; to make so much of the Boston incident is to falsify history in fact, but, above all, in the impression produced upon the rising generation that Boston was a leader in this movement. The first tea-

ship arrived in Boston November 28, 1773, and two others shortly after, but it was not until the evening of December 16th that their contents were thrown overboard. Over six weeks before this a precisely similar occurrence had taken place in New York without any such delay, and though the movement proved futile because it was undertaken on a false alarm, it is easy to understand that due credit should be given to those who took part in it for their thoroughgoing spirit of opposition to British measures. On this subject once more Dr. Emmet, whose great collection of Americana made him probably more familiar with the sources of American history than any one of our generation, has been, in the article already quoted, especially emphatic.

"On November 5, 1773, an alarm was raised in the City of New York to the effect that a tea-ship had entered the harbor. A large assembly of people at once occurred, among whom those in charge of the movement were disguised as Mohawk Indians. This alarm proved a false one, but at a meeting then organized a series of resolutions was adopted which was received by the other colonies as the initiative in the plan of resistance already determined upon throughout the country. Our schoolbooks are chiefly responsible for the almost universal impression that the destruction of tea, which occurred in Boston Harbor, was an episode confined to that city, while the fact is that the tea sent to this country was either

destroyed or sent back to England from every seaport in the colonies. The first tea-ship happened to arrive in Boston and the first tea was destroyed there; for this circumstance due credit should be given the Bostonians. But the fact that the actors in this affair were disguised as Mohawk Indians shows that they were but following the lead of New York, where this particular disguise had been adopted forty-one days before, for the same purpose."

Just as the Boston Massacre has been insistently pointed out as the first blood shed for American liberty, so the Battle of Lexington has been drilled into our school children's minds as the first organized armed resistance to the British. Without wishing at all to detract from the glory of those who fought at Lexington, there is every reason not to let the youth of this country grow up with the notion that Massachusetts was the first to put itself formally under arms against the mother country. Lexington was not fought until April 19, 1775. The battle of Alamance, N. C., which occurred on May 16, 1771, deserves much more to be considered as the first organized resistance to British oppression. The North Carolina Regulators rather than the New England Minute Men should have the honor of priority as the first armed defenders of their rights against encroachment. The subject is all the more interesting because the British leader who tried to ride rough-shod over stout Americans in North Carolina and met

with open opposition was the infamous General Tryon of subsequent Connecticut fame. Every one knows of his pernicious activity in Connecticut, very few that he had been previously active in North Carolina. That is the difference between history as " it has been written " for New England and the South. That the Battle of Alamance was no mere chance engagement, and that the North Carolinians were aflame with the real spirit that finally gave freedom to the colonies, can be best realized from the fact that the first Declaration of Independence was made at Mecklenberg in North Carolina, and that some of its sentiments, and even perhaps its phrases, were adopted in the subsequent formal Declaration of Independence of all the colonies.

For those who may be surprised that North Carolina should have been so prominent in these first steps in Revolutionary history and these primary developments of the great movement that led to the freedom of the Colonies, for we are accustomed to think of North Carolina as one of the backward, unimportant portions of the country, it may be well to say that at the time of the Revolution she was the third State in the Union in population, following Virginia and Pennsylvania in the number of inhabitants, exceeding New York in population by the total census of New York City and Long Island, and ahead of Massachusetts, which immediately followed it in the list by almost as many. The sturdy

inhabitants of the northern of the Carolinas had been for a decade before the Revolution constantly a thorn in the side of the British government and had been recognized as leaders in the great movement that was gradually being organized to bring all the colonies together for mutual help against the encroachments of the British government on their rights. Our school children fail almost entirely to know this because they have been absorbed by Massachusetts history—but then North Carolina did not have the good fortune to have writers of history. New England had them and to spare, and with a patriotic zeal for their native heath beyond even their numbers.

Of course it may be said that these are old-time historical traditions which have found their way into history and are difficult to get out, though most of those who know any history realize their absurdity, and the modern historian, even though he may be from New England, holds the balance much more equitably between the different portions of the country. Apparently this is just what is not true, for New England professors of history and writers of history still continue to write in the same old strain of such surpassing admiration for New Englanders that every other portion of the country is cast into shadow. It was a distinguished professor of history at Harvard who, within five years, in an important historical work,* said: "Whatever the social mixture

* "The American Nation," 27 vols.

of the future, one thing is certain; the standards, aspirations and moral and political ideas of the original English settlers not only dominate their own descendants, but permeate the body of immigrants of other races—the Puritans have furnished the little leaven that leavens the whole lump."

One wonders just what such a sentence means and, of course, finds it in many ways amazingly amusing. One would think that the only English settlers were the Puritans, and that they had had great influence in the origin of our government. Apparently, for the moment at least, this Harvard professor forgot in his enthusiasm for the forefathers in Massachusetts that the other branch of English settlers, those of Virginia, were ever so much more important in the colonial times and for long afterwards, than the Puritans. Of the first five Presidents four were from Virginia. It is possible they forget now, in Massachusetts, that only one was from Massachusetts, and that that one did more to disturb government "of the people, by the people, and for the people" than any other, so that after four short years the country would have no more of him and no more of these Massachusetts Puritans for more than a quarter of a century. This dear, good professor of Harvard has deliberately called all the non-English elements in our population foreigners because of his absorption in New England. He said: "If the list of American

great men be scanned the contribution of the foreigner stands out clearly. The two greatest financiers of America have been the English West Indian Alexander Hamilton and the Genevan Albert Gallatin. Two Presidents, Van Buren and Roosevelt, are of Dutch stock; five others, Jackson, Buchanan, Grant, Arthur and McKinley of Scotch and Scotch-Irish descent." All "foreigners" except the New Englanders! Save the mark!

It is rather interesting to find that their contemporaries of the Revolutionary period did not share that high estimation of the New Englanders which they themselves clung to so tenaciously and have writ so large in our history that the tradition of New England's unselfish wonder-working in that olden time has never perished. Most of us are likely to know something about the rather low estimation, at most toleration, in which during the Revolutionary period many of the members of Congress from New England were held by fellow-members of Congress from other portions of the country. They were the most difficult to bring into harmony with others, the slowest to see anything that did not directly enhance the interests of New England; they were more constantly in opposition to great movements that meant much for the future of the colonies themselves and the government of the United States afterward than any others. We are prone to excuse this, however, on the score

of their intolerant Puritanism, and taught by our New England schoolmasters, most of us, at least, fondly cherish the notion that all the New Englanders made supreme sacrifices for the country and did it with a whole-hearted spirit of self-forgetfulness that made every man, above all in Massachusetts, an out-and-out patriot. It is curious to find how different were the opinions of those from other portions of the country who came in contact with New Englanders at this time, from that which is to be found in their histories.

Washington, for instance, had by no means the same high opinion of the New Englanders, and, above all, of the New England troops, that they had of themselves and that their historians have so carefully presented of them. It is said that Sparks edited many of Washington's criticisms of New Englanders out of his edition of the "Life and Letters." Certain it is that some of the letters which Sparks did not consider it proper to quote from, contain material that is very interesting for the modern historian who wants to get at contemporary documents, and for whom contemporary opinions such as that of Washington cannot but seem especially valuable. In a letter from the camp at Cambridge, August 20, 1775, to Lund Washington at Mt. Vernon, Washington said: "The people of this Government [Massachusetts] have obtained a character which they by no means deserve; their officers, generally

speaking, are the most indifferent kind of people I ever saw. I have already broke one colonel and five captains for cowardice, and for drawing more pay and provisions than they had men in their companies. There are two more colonels now under arrest and to be tried for the same offenses; in short, they are by no means such troops, in any respect, as you are led to believe of them from the accounts which are published; but I need not make myself enemies among them by this declaration, although it is consistent with truth. I dare say the men would fight very well (if properly officered), although they are an exceedingly dirty and nasty people. Had they been properly conducted at Bunker's Hill (on the 17th of June) or those that were there properly supported, the regulars would have met with a shameful defeat, and a much more considerable loss than they did, which is now known to be exactly 1,057, killed and wounded. It was for their behavior on that occasion that the above officers were broke, for I never spared one that was accused of cowardice, but brought them to immediate trial."

One of the most interesting perversions of the history written by New Englanders is that in their emphasis of New Englandism they have sometimes signally failed to write even their own history as the documents show it. There has been much insistence, for instance, on the supposed absolute purity of the English origin of

the settlers in New England and especially in Massachusetts until long after the Revolution. Palfrey, in the introduction to his "History of New England," says: "The people of New England are a singularly unmixed race. There is probably not a county in England occupied by a population of purer English blood than they are." Senator Lodge, forty years later, in his "History of the Revolution," re-echoes Mr. Palfrey's words, and says that "the people were of almost pure English blood, with a small infusion of Huguenots and a slight mingling in New Hampshire of Scotch-Irish from Londonderry." During the past ten years the Secretary of State of Massachusetts, by order of the Legislature, has been compiling from the state archives the muster roll of the Massachusetts soldiers and sailors of the Revolutionary War. This does not bear out at all what Mr. Palfrey and Mr. Lodge have asserted so emphatically as to the exclusively English origin of the population of New England and, above all, of Massachusetts at this critical time. There is not a familiar Irish name that does not occur many times. The fighting race was well represented. There were 167 Kellys and 79 Burkes, though by some unaccountable circumstance only 24 Sheas. There were 388 O'Briens and other O's and Macs galore. There are Aherns and Brannigans and Bannons and Careys and Carrolls and Connellys, Connors and Corcorans and Costellos and Cosgroves and Costi-

gans, and so on right through the alphabet. Curiously enough there are no Lodges on the muster roll, but there is not an Irish name beginning with " L " that is not represented. There are no less than 69 Larkins and some 20 Learys and Lonergans and Lanigans and all the other Celtic patronymics in " L."

Dr. Emmet, who has investigated very carefully the question of the deportation of the Irish to this country under Cromwell, says that many shiploads of them were sent to Massachusetts in the seventeenth century. He declares that enough Irish girls were sent over to Massachusetts at this time to furnish wives for all the immediate descendants of the Puritans. There are certainly many more Irish names than are dreamt of in the very early times. Priscilla Alden's name before she tempted John to give her his rather pretty name, has never found its way into poetry because no poetry would stand it—it was Mullen or Mullins.

Even after the Revolution the place of New England, but especially Massachusetts, in the Republic has been sadly misrepresented in our American history as a rule, because our school historians at least have usually been Bostonians. When Washington, in 1789, made his first visit as President of the United States to New England, he was received very enthusiastically in Connecticut, though this state had not been wholly favorable to the new government, but in Massa-

LIBRARY OF THE UNIVERSITY OF CALIFORNIA

chusetts his reception was distinctly cold, and indeed, almost insulting. John Hancock was Governor of this State and he absolutely refused to meet the President at the State line, though most other Governors had done this, and while President Washington was in Boston he declined even to call on him. The reason for this was the assumption of a characteristic Massachusetts attitude. There seems no doubt now that John Hancock, not because he was pompous John Hancock, not because he was the Governor of Massachusetts—and this idea had been fostered among his people—honestly believed that the Governor of Massachusetts was a greater man in every way than the President of the nation.

There are many who might say that this state of mind has endured even to the present time. Certainly Massachusetts' representative men have constantly set the interests of their commonwealth above those of the Union. New England has always had a tendency that way. During the newspaper agitation over the recent tariff bill one of the cartoonists represented the United States as a puppy dog with New England as the tail, with the caption, "How long is the tail going to wag the dog?" During the second war with Great Britain in 1812 New England was the most recalcitrant portion of the Union, and another conceited Governor of the State hampered the nation in every way. Our histories for

schools, at least, have been so written as to produce the impression that only the South ever was dissatisfied with the Union, inclined to be rebellious and ready to talk about the nullification of the compact which bound the states together. The Hartford convention is mentioned, but not given near the place that it deserves, since it represents the feeling, very rife at that time, that such a procedure as nullification was quite justifiable, Twelve delegates from Massachusetts were present in this convention and there was a decided spirit of rebellion against the general government because, forsooth, the war had injured Boston's business.

It is not alone in history, however, that New England's thoroughgoing admiration for herself has served to disturb the attainment of truth by the rising generation of Americans. Besides exaggerating the comparative influence of New England in the affairs of the country, they have exaggerated the place of favorite New England authors in the literature of the world to such a degree that growing young America cannot help but have a number of false notions of comparative literary values, which he has to rid himself of before he is able to attain any proper appreciation of world literature or even of English literature. A little group of New England literary folk came into prominence about the middle of the nineteenth century. Because they were the best that New England could produce, appar-

ently they were considered by New Englanders as the best in the world. English critics, of course, laughed at their self-complacency, but our New England schoolmasters took New England's writers so seriously and proceeded to write so much about them and make them so much the subject of teaching not alone in New England but in every part of the country, that now it is almost impossible to get our people to accept any true standards, since admiration for these quite unimportant New England writers has ruined any proper critical literary appreciation.

As a consequence our rising generations for some time have been inclined to take Emerson seriously as a great philosopher, writer and thinker. They have been very prone to accept dear old Oliver Wendell Holmes, kindliest of men, charmingest of writers, as a great literary man. There have literally been hundreds of English writers such as these in the past three centuries of English literary history, who now take up at most but a few lines in even large histories of English literature. Taking Emerson seriously is fortunately going out of fashion. If one wanted a criterion of the depth of thought of the generation that accepted him originally and passed him along as a significant philosophic prophet, then surely one need go no farther. Our optimistic Carlyle, writing in a minor key, looms up so much smaller now than a generation ago that we can readily realize how New England-

ism infected literary and philosophic standards. What is thus said of Emerson may be repeated, with perhaps a little less emphasis, of the other writers whom New England has insisted on proclaiming to the world as representative of all that was best and highest in literature—because for a moment they commanded attention in New England.

There was a time, not so long ago, when it was considered the proper thing in this country to talk of Longfellow as a great poet. Of course, no one does so any more. The devotion to him of so much time in our schools, while so many much more important contributions to our English poetry have but scanty attention paid them, is still producing not only a false impression on children's minds as to his proper place in literature, but is playing sad havoc with literary standards generally, so far as they may be the subject of teaching. Longfellow was, of course, nothing more than a pleasant balladist and a writer of conventional thoughts on rather commonplace themes in reasonably smooth verse. For really profound thought Longfellow's poetry has never a place. His loftiest flights of imagination do not bring him anywhere near the great mysteries of human life or the deep thoughts that run through men's minds when they are touched to the quick. Of the sterner passions of men he had scarcely an inkling.

Whittier, of course, has much more real poetry

in his little store of verse than Longfellow, but Whittier's voice is only a very low treble and his religious training was too narrow to permit him any breadth of poetic feeling. No one thinks now that anything that Whittier wrote will live to be read by any but curious students of certain anti-slavery movements in connection with the history of our civil war. He will have an interest for antiquarian litterateurs, scarcely more than that. Of James Russell Lowell's rather charming academic verse one would prefer to say nothing, only that the serious study of it in our schools leads the present generation to think that he, too, must be considered seriously as a poet. It is doubtful if Russell Lowell ever thought of himself as a poet at all. Appropriate thoughts charmingly expressed for occasions, in verse reasonably tuneful, he could do better than most men of his time in America—that was all. Of real poetic quality there is almost none. Lowell's verse will not be read at all, except by the professional critic before another generation has passed, and I am sure that no one realized this better than Lowell himself.

What Longfellow and Lowell will be remembered for in the history of ninteenth century literature, most of the rising generation of Americans know very little about and the great majority of them completely ignore. It is for their critical and expository work in introducing great foreign authors—really great poets—to the knowl-

edge of their countrymen that both Longfellow and Lowell will deserve the gratitude of all future generations and some of their work in this regard will endure when their verse is forgotten. Longfellow's edition of Dante was not only well worth all the time he gave to it during thirty years, but represents a monument in American literature that will be fondly looked back to by many a generation of English-speaking people. Very probably of his work in verse the "Golden Legend" will mean more to a future generation than almost anything else that Longfellow has done. Above all, it was precious in making Americans realize how profound and how beautiful had been the work of the poets of Europe seven centuries ago.

In the light of this gradual reduction of the value of New England's literature to its lowest terms it is extremely amusing to find occasionally expressions of the value of the New England period in English literature as expressed by enthusiastic New Englanders and, above all, by ardent—what, for want of a better term we must call—New Englanderesses. One of these, Miss Helen Winslow, has recently and quite deservedly been made great fun of by Mr. H. W. Horwin in an article in the *National Review* (England), headed, "Are Americans Provincial?" which brings home a few truths to us in what concerns our complacent self-satisfaction with ourselves. Miss Winslow declares that the

great Bostonian period was "a literary epoch, the like of which has scarcely been known since the Elizabethan period." She proclaims that "The Papyrus Club [of Boston] is known to men of letters and attainments everywhere." She notes that "Scott, Balzac and Thackeray received a legal training," just when she is going to add that "Robert Grant is also a lawyer." She adds that "young people everywhere adore the name of Sophie Sweet" (whoever she may be). Is it any wonder that the ordinary non-New-England American "gets hot under the collar" for his countrymen under such circumstances?

Two really great masters of literature we had in America during the nineteenth century, Poe and Hawthorne. Because of our New England schoolmasters, as it seems to most of us, Poe has never come into his own proper appreciation in this country. The French consider him the great master of the short story, and that has come to occupy such a prominent place in our so-called literature in America, that one might look for an apotheosis of Poe. He is the one writer whose works in both prose and verse have influenced deeply the literary men of other countries besides our own. No other American writer has been given the tribute of more than a perfunctory notice in the non-English-speaking countries. In spite of this Poe's name was kept out of the Hall of Fame at New York University,

which was meant to enshrine the memory of our greatest thinkers and literary men, though we had generally supposed that the national selection of the jury to decide those whose names should be honored, would preclude all possibility of any narrow sectional influence perverting the true purpose of the institution. Poe has never been popular in New England, nor has he been appreciated at his true worth by the literary circles of New England. Their schoolmasterly influence has been pervasive enough to keep from Poe his true meed of praise among our people generally, though all our poets and literary men look up to him as our greatest poetic genius.

As for Hawthorne, there is no doubt that he is our greatest American writer in prose. He was the one man in New England with a great message. His writings came from deep down in the human heart, from the very wellsprings of human passion, and had their origin not far from where soul touches body in this human compound. The English, usually supposed to be slow of recognition for things American, acknowledged his high worth almost at once. Some of us here in America, indeed, have had the feeling that to a great extent our people have had to learn the lesson of proper appreciation for Hawthorne from the English-speaking people across the water. To Americans, for years, he was little more than a story-writer, not so popular as

many another writer of stories, and his really great qualities were to a great extent ignored. Because Puritan New England was out of sympathy with the mystical spirit of his writings only a late and quite inadequate appreciation of the value of his work was formed by his countrymen. Something of this unfortunate lack of appreciation crept into the schoolmastering of the country, and Hawthorne is probably not as highly valued in his native land as he is in England, though France and Germany have learned to look up to him as our greatest of American literary men—the one of our writers who, with Poe, attracts a world audience.

When there is question of anything else besides literature, of course, New England has no claims at all to make, and she has stood for many unfortunate austere tendencies in American life. For anything like public spirit for art or music or æsthetics in any department the Puritan soul had no use. Consequently our artistic development was seriously delayed as a nation by the influence that New England had as the schoolmaster of the country. The consequence was that our churches were bare and ugly, our homes lacking in the spirit of beauty and our municipalities mere places to live and make money in, but with no provision for the enjoyment of life. It is in this that New England has doubtless done us most harm and it is for this reason that many people will re-echo that expression of a descend-

ant of the Puritans who declares that it would have been "an awfully good thing when the Puritans landed on Plymouth Rock if only Plymouth Rock had landed on the Puritans." It would have saved us an immense deal of inhibition of all the art impulses of this country, which were almost completely choked off for so long by the narrow Puritanism so rampant in New England and so diffusively potent in our educational system.

In conclusion one feels like recalling once more Lowell's "Essay on a Certain Condescension in Foreigners." Surely the daughter New England, consciously or unconsciously, has treated the rest of the country very much like Mother England used to treat nascent English America long ago. There are many of us who in recent years have come to know New Englandism and its proneness to be condescending, who have felt very much like paraphrasing, with the addition of the adjective "new" here and there, certain of Lowell's best-known sentences. The new version will make quite as satisfactory a bit of satire on our Down East compatriots as Lowell's hits on the mother country and our English cousins across the water. Very probably there are more people who will appreciate the satire in this new application of the great American essayist's words than they did in its original form: "It will take (New) England a great while to get over her airs of patronage toward us, or even passably

to conceal them. She has a conviction that whatever good there is in us is wholly (New) English, when the truth is that we are worth nothing except so far as we have disinfected ourselves of (Neo-) Anglicanism."

TC 03621

Jay 2L

200 mL x